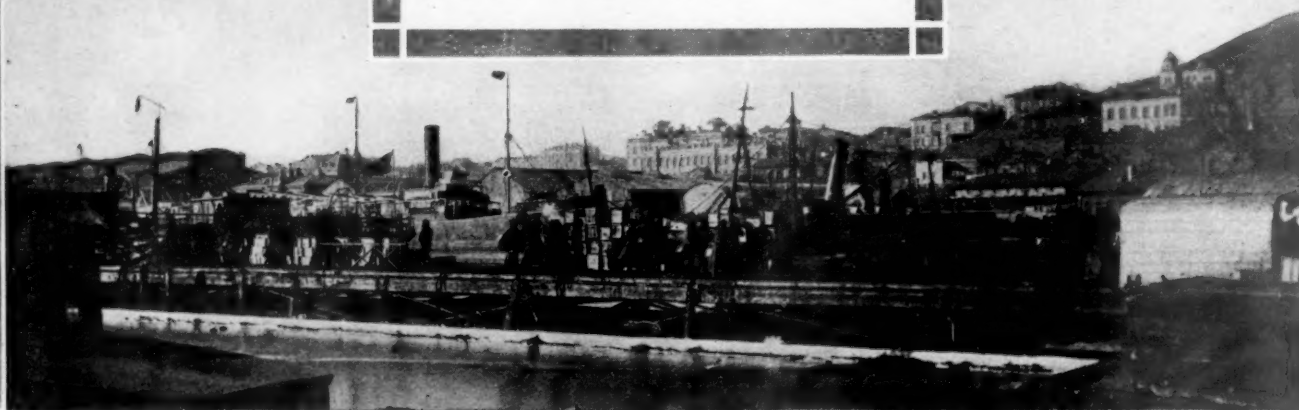


# Railway Age

Vol. 64.

March 22, 1918

No. 12



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EDWARD A. SIMMONS, Pres. L. B. SHERMAN, Vice-Pres. HENRY LEE, Vice-Pres. & Treas. M. H. WIUM, Secretary.  
CHICAGO: Transportation Building. CLEVELAND: Citizens Building. WASHINGTON: Home Life Building.

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# What Doth It Profit a Man?

Germany is working, by every scheme that ingenuity can devise and money can put into operation, to make American workingmen traitors to their country in its hour of need.

What doth it profit a man if he sends his sons and brothers to the battlefields, and after he gets them there he betrays them to the enemy by stopping the industrial home work without which they can neither win nor escape?

The courses of nations—the lives of millions—are changed by very small events. Had the Monitor not been ready for the Merrimac exactly when she was, the Union fleet would have been rendered useless and the Civil War might have had a different ending. Had someone then succeeded in making serious trouble in a mine, a foundry, or a shop—had someone then succeeded in delaying transportation while the Monitor was under construction, what would have become of the whole Union fleet of wooden ships which was blockading the Southern ports?

Germany wants us to be unready or confused when a similar crisis comes.

Our whole nation is preparing for the turning point in this war which is to determine whether every man shall have a chance to work out his destiny, or whether he and his country are to become subject to the dictation of a Prussian group.

If we are not fully ready when the test comes it will be easier for German armies and German ships, German submarines and German aircraft, to kill the men that go out from your community to protect you and your rights.

Whoever from any motive delays work bearing directly or indirectly on the war will be an accessory to the murder of his fellow Americans.

Every strike in the United States, while this war is in progress, is a blow in favor of Germany.

What doth it profit a man to increase his wages or decrease his working hours, if by so doing he contributes to the victory of a nation that makes slaves of white men and scourges them as they work?

The condition of the blacks in America before the Civil War was far better than the condition of the whites of Belgium who today are carried off

like cattle, are overworked, underfed, beaten and, sick or well, must labor incessantly, often under the fire of their own guns.

What doth it profit a man to aid a monarch who in this manner has shamelessly re-established the slavery of white men? The workingman in America who obstructs the cutting of wood, the mining of fuel, the weaving of cloth, the turning of wheels in factories or on rails while this war is in progress—he is helping the slave masters, the destroyers of civilization, the murderers of women and children.

What doth it profit a man who has lived in a land of incomparable liberties, of advantages unparalleled in all the history of the world, to contribute by any act, however small, to the success of an autocracy to whom a common man is but a clod of earth?

The workingman who stands faithfully by his duties day by day, allowing no person and no thought to get between him and an honest performance of his work, is rendering the highest kind of patriotic service to his nation and to his family.

What doth it profit a man to sell his manhood, his self-respect, perhaps his soul, for a little selfish gain in such an hour? When life's services are measured up at the end, those who have faithfully labored through the war shall be entitled to their credit as well as those who have led the charges in battle.

What doth it profit a man who wants to improve the condition of laboring men if he gains a little, but in so doing prolongs the slavery of Belgian workingmen, who now cannot gain their freedom but by death, or through the victory of the Allies?

Stand by your work for your own honor and safety, for the safety and success of your fellow countrymen who go forth to fight, as well as for the sake of workingmen who are now in actual slavery beneath German slave drivers.



# EDITORIAL

## Railway Age

### Is the Railway Supply Industry Awake, or "Asleep at the Switch"?

THE RAILWAY BUSINESS ASSOCIATION originally was organized chiefly as an agency of conciliation. Its purpose was to help bring about better relations between the railways and the public, and between the railway supply companies and the railways. It has done this.

Conditions in both the railway and the railway supply fields have been greatly changed by the adoption of government control of railways. The railways and railway officers have been deprived of many means which they formerly employed to defend themselves before the court of public opinion. No railway officer at present feels free to discuss frankly the relations between the railways, on the one side, and the government and the public, on the other side. Most railway advertising and publicity work have been discontinued; and that which is continued is under government control.

As for the railway supply companies, they suddenly find themselves in a position where they must not merely do what they can to secure fair treatment for the railways from the government, but where they must adopt measures to insure fair treatment for themselves from the government.

For the railway supply companies not promptly to recognize the greatness of the changes in their own situation which government control has wrought, and act accordingly, would be very stupid, and might prove absolutely fatal for many of them. The time has come when they must organize to fight every wrong tendency of the government in dealing with the railways, and to fight to protect every right and every legitimate interest of the railway supply industry.

The term "railway supply industry," as here used, is a very broad one. We include in it every class of concern which directly or indirectly produces equipment, material or supplies of any kind for railways. The number of concerns which come within this description is very large, the amount of their invested capital runs into billions of dollars, the number of their employees runs into millions. Thus broadly considered, the railway supply industry is one of the largest, and by organizing on sound lines and acting courageously and energetically, it can make itself one of the most influential industries, if not the most influential, in the United States.

Every concern and individual in any way engaged in the railway supply business is invited to be represented at the meeting under the auspices of the Railway Business Association at the Hotel LaSalle in Chicago on April 8. The purpose of the meeting is to so reorganize this association as greatly to broaden its activities and make it a potent force in the determination of the country's future railway policy

and for the protection and promotion of the welfare of those who furnish necessities to railways.

Unless the railway supply interests of the country are "asleep at the switch," the meeting will be largely attended and will result in the formation of an organization at once inclusive enough, many-sided enough, flexible enough, and strong enough to play a very important part in the affairs of this country.

America must awaken to and stamp out the insidious German propaganda which is striving to cut down production,

**What Doth it Profit a Man?** restrict transportation, and place other stumbling blocks in the way of our hearty and successful participation in the fight against autocracy and Prussianism. We must recognize the great

danger in this propaganda which is specially devised to suit local conditions and national characteristics. It laid the great giant Russia prostrate, defeated Italy's splendid army, controls the commerce of Spain and is largely responsible for our Mexican troubles. It is hard at work in many places and in many ways in this country and every loyal citizen must do his duty in fighting it—this is just as important and just as necessary as actual fighting in the trenches on the other side. The stirring appeal on the opposite page is addressed by the Conference Committee on National Preparedness to the American workingmen. The term "workingmen," must be construed in its broader sense to include all workers, whether manual or brain,—and this includes every railroad employee from the apprentice boy or beginner to the president and the chairman of the board. The Conference Committee on National Preparedness has offices in the Metropolitan Life Building, New York City, and is prepared to furnish posters or leaflets in large quantities, containing the message, "What Doth It Profit a Man?"

The only item of railway revenues that showed a decrease for the calendar year 1917, as compared with 1916,

**Reduction in Mail Revenues** was the item of revenue from the mail traffic, according to the recent summary of railway returns published by the Interstate Commerce Commission. The earnings of the railways

for carrying the mails amounted to \$58,681,549 in 1917, a reduction of \$2,546,216 from those of 1916. This is a reduction of 4.4 per cent per mile of road. For the same year freight revenues per mile of road increased 9.6 per cent, passenger revenues increased 16.4 per cent and express revenues increased 18.1 per cent. In the face of these figures it would be extremely unlikely that the mail traffic had not increased also and while no statistics of the amount of mail carried are available we have the authority of a recent statement issued by Postmaster General Burleson that the first class mail increased during the year by 25 per cent while the parcel post increased approximately 40 per cent. The statement was issued in January for the purpose of transferring the blame for delays in the mail from the

post office department to the railroads whose pay for their service in carrying the mails had been reduced.

If the present railway mail pay rates and the present methods of the department of handling the railway mails are continued, and the question whether they are to be continued is being investigated by the Interstate Commerce Commission, a still greater reduction in the payments to the railroads will be shown for the present year, because the new methods had not been in full effect for all of last year. However, the slight saving to the public will hardly be appreciated by those who have reason to depend to any considerable extent upon the speed or regularity of the mails because the methods by which the saving is being effected do not tend to improve the service in either of these respects. The reduction in mail pay for last year has been principally at the expense of the railways. If continued it will hereafter be at the expense of the United States government because the less the post office department pays for its transportation service the less the railroad administration will have with which to pay its expenses.

The annual report of the Pennsylvania, which traverses the territory where the greatest increase in the mail has occurred, shows that compared with 1915 the passenger revenues had increased 37.1 per cent and express revenues increased 49.2 per cent but mail revenues decreased although there was an extraordinary increase in the quantity of mail carried. How this reduction in the compensation of the railroads for carrying the mail has been accomplished, under the space system which has been substituted for the weight system of payment, has been explained several times in these columns.

### What Does Standardization of Locomotives Mean?

WITH THE WORK of the Government's Committee on Standard Locomotives drawing to a close, it is well to review what standard locomotives will mean to the railways of this country. It is assumed that the committee plans to recommend light (about 55,000 lb. axle load) and heavy (about 60,000 lb. axle load) classes of Mikado, Mountain, Pacific, Santa Fe, Mallet and Switcher types of locomotives.

By restricting future orders to the above twelve designs our railways will have locomotives which in many cases will be too light for the service in which they are placed and in some cases too heavy for the particular needs of the roads. This means a decrease in operating efficiency—it will cost more to operate the locomotives, more trains will have to be run, more locomotives will have to be built, or if, for instance, the Santa Fe type is to be used for purposes in which the heaviest Mikados are now being used, the locomotives will cost more and be more expensive to maintain. The heavy investments many roads have made in strengthening bridges and in improving the track for wheel loads above 60,000 lb. will not be giving the anticipated return. Advantage cannot be taken of large clearance limits on some roads, particularly those in the West. In fact, the increase in cost of train operation due to locomotives of a compromise design will more than offset the saving in first cost.

The maintenance of these standard locomotives, which will be "new" locomotives to all the roads, must be given serious consideration. The repair facilities of the railroads are overtaxed as it is. What will be the conditions when these standard locomotives are placed in operation? New drawings, templates, jigs, patterns and the many conveniences the roads have developed for repairing locomotives standard to their lines will have to be made for the new

locomotives and all at a time when every ounce of energy is required to repair and maintain the existing locomotives. With the 400 or more locomotives that are now being operated on foreign lines there is an excellent opportunity of finding out what confusion a new locomotive creates when it comes in for repairs. It has been stated by one who has handled such locomotives that they are out of service 30 per cent more time than the home road locomotives.

With the increase in operating expenses and the increase in maintenance costs, will the money saved by contracting for standard locomotives be worth while? Will the country have any more motive power—not locomotives, but motive power—by adopting standard locomotives rather than having the builders construct locomotives of existing designs, which meet the particular operating conditions and which the roads are organized to maintain? Is it wise to burden further the railways' already overtaxed facilities? There can be but one answer, particularly at this time, when the nation is at war.

### Australia as a Future Market

THERE WILL BE many countries looking towards the American railway supply field to help fill their urgent and belated demands after the war, but there will be few markets that will offer the opportunities open to us in Australia and New Zealand. These countries in normal times import great quantities of railway materials each year, principally from England and the United States, and our machine tool exports there have been especially large. Since the shipping situation became so acute, however, the demands have not been met and Australia and New Zealand today are in urgent need of railway materials for both maintenance and contemplated improvements. The Australians are already familiar with many American railway products and keenly appreciate their excellence, as has been evidenced by the continued sales, particularly of such things as signal material and machine tools. The opportunity for American railway supply manufacturers, in short, is there. Are these manufacturers doing their share now to lay their plans to make the most of this opportunity?

It is this question that makes especially interesting and timely the report issued this week by the Bureau of Foreign and Domestic Commerce on American markets for railway equipment, materials and supplies in Australia and New Zealand. Frank Rhea, a man with extended experience in both the railway and the railway supply field, has just returned to this country after a trip covering about one year, during the course of which he investigated, as commercial agent for the Bureau, the markets for railway equipment in Australia and New Zealand, and in China, Japan, Korea and Manchuria. His report on Australia and New Zealand, published as Special Agents Series No. 156, is to be followed later by a similar report on the other countries which he visited.

In the abstract of Mr. Rhea's conclusions published on another page it will be seen that he speaks very conservatively of the trade opportunities in railway supplies in Australia. It is this fact and the standing which Mr. Rhea has in the field which give the report no small share of its value. Mr. Rhea has not exaggerated, but the opportunities for trade that he found stand out in the report as sharp and clear as crystal, showing Australia and New Zealand to be among the best markets that the American railway business man could hope to enter after the demands of war have given way to those of peace.

Mr. Rhea emphasizes the vast possibilities that lie before the American manufacturer of car and locomotive specialties and parts, the builder of machine tools, the maker of



signal apparatus and accessories and the manufacturer of maintenance of way material and track tools. The Australians, he says, will prefer to build their own cars and locomotives because labor is so well organized that this work in most cases will not be allowed to go out of the country. They will not be able, however, to supply the parts and specialties efficiently; but, on the other hand, the fact that so much work will be done in company shops will stimulate as it has in the past the steady and continued sale of American machine tools which have already proved their excellence in Australia and have furnished a large proportion of our total exports to that continent.

The suggestions that Mr. Rhea presents on "application" or commercial engineering are not to be confined to Australia and New Zealand. They are world-wide. They are of particular importance at this time, however, because they emphasize the necessity of getting at this export proposition now. England, France and Canada have been in this war longer than we, and although their every energy is being bent to win the war, they nevertheless are already laying their plans for after-the-war business. American industry—the railway supply industry included—must do the same.

### The Rate Decision

TOO LATE to be of any particular advantage to the railroads, except possibly as a vindication of their judgment, the Interstate Commerce Commission has rendered a decision allowing the eastern roads most of the remainder of the general advance in freight rates which they asked about a year ago and which was granted in part last June. The present effect of the advance will be to make it that much easier for the railroad administration to make the railroads earn enough to pay its guarantees to the companies for the use of their properties and the expenses of operation.

Whether the effect on railroad credit, if it had been ungrudgingly and promptly allowed at the time the railroads urged its necessity, would have been sufficient to have made it unnecessary for the government later to take over the railroads in order to stabilize the credit structure of the country, is, of course, now problematical. As the commission has not seen fit to accompany its formal orders with any opinion as to its reasons, it may also be considered problematical whether the same decision would have been rendered had the railroads remained under private management.

In its decision of June 30, 1917, the commission declared that the record had not disclosed the existence of a situation requiring "so heroic a remedy" as the 15 per cent advance asked by the railroads, although it was only five months later that it addressed a special report to Congress recommending two alternative plans which many would consider even more heroic.

The commission also indicated in its report to Congress on December 1, after the railroads had renewed their petition for higher rates, that it thought that no advance in rates would be sufficient to relieve the situation confronting the carriers and the country. Probably, in view of the fact that railroad financing at that time had come into competition with government financing, the commission was right in that statement. It was then too late to repair the damage which had been done in earlier years by a governmental policy of railroad regulation which had discouraged the adequate development of the transportation system by making investment in railroad securities unattractive and uncertain.

Railroads have been asking higher rates with indifferent success for several years. Their original petition last year was made on March 22, before this country was at war.

They hoped then for an increase which would stimulate their credit. By the time they made their supplemental application, which the commission has now passed upon, they were chiefly engaged in a struggle to keep up with mounting expenses.

Now that the inadequacy of railroad facilities has become painfully evident there are occasional criticisms because the railroads did not invest more out of what surpluses some of them had, or use what credit they had left, in adding to their plant. Such criticisms overlook the fact that the new money invested for several years had been allowed little or no additional return and that in most cases new capital would cost more than there was any likelihood that it would be allowed to earn.

Whether the commission considers the latest decision, handed down the day after the railroad control bill was passed, as an act of heroism or one of martyrdom is not disclosed, because the commission confines its expression on the subject to a series of formal orders vacating its previous suspensions. Perhaps we shall never know whether the commission was guided by a conviction that Mr. McAdoo would need the money or whether it had reached a belated conclusion that the railroads had needed it. Possibly there is some significance in the fact that the decision was rendered only a few days after the publication of the revenues and expenses of the railroads for the calendar year 1917, whereas when its former decision was issued it had only a forecast.

During the hearings in the 15 per cent case and since that time it has been frequently stated that the railroads, in urging the need for higher rates, were unduly alarmed because of the extremely unfavorable showing for the month of February and that the results for the year would not bear out the prediction they made at that time of the effect of increasing expenses. The commission itself took that view to a considerable extent and before deciding the case had its own statisticians prepare careful estimates for the whole year based on the actual results for the first four months. It predicted that the operating revenues for the year 1917 would be in excess of those for any preceding calendar year and gave estimates for both the operating revenues and the operating income per mile of road, saying that its estimate as to operating income was entitled to less confidence than that of operating revenues and might be reduced somewhat by anticipated increased costs, if realized.

Its estimates, compared with the actual results as given in its recent summary, are as follows:

(Per mile of road)	United States	Eastern District	Southern District	Western District
Average operating revenues (as estimated) .....	\$17,104	\$29,432	\$13,610	\$12,507
Average operating revenues (as reported) .....	17,482	30,488	14,191	12,616
Average operating income (as estimated) .....	4,334	5,802	3,872	3,813
Average operating income (as reported) .....	4,185	6,272	3,683	3,395

This comparison shows that the commission's estimate of the expected increase in revenues was considerably exceeded not only for the roads as a whole but for those in all three districts. For the roads as a whole the revenues were \$378 greater per mile of road than the estimate and for the eastern, southern and western districts they were \$1,056, \$581 and \$19, respectively, greater than the estimate. On the other hand, the anticipated increase in expenses were more than realized and as a result the operating income of the roads as a whole was \$149 less than the estimate in spite of an increase in revenues \$378 greater than the estimate, so that the increase in expenses must have been \$527 per mile greater than the estimate. In the case of the eastern roads the operating income per mile was \$470 per mile greater than the estimate, or less than half of the increase in revenues. Applying this to the mileage of the eastern roads, 59,157, gives a total increase as compared with the estimate of \$27,803,790. It was estimated that the increase



in rates which the commission allowed at that time amounted to about \$97,000,000 a year and as the higher rates were actually in effect for a little over three months the increased operating income as compared with the commission's estimate is about equal to the amount of the rate increase for the period during which the rates were in effect. In other words, it took an increase of \$586 a mile in revenues, resulting from a greater increase of traffic than was expected, to make the operating income as high as the commission estimated it would be, if the higher rates allowed be left out of consideration, as they were in making the estimate, and the expenses were, therefore, \$586 per mile more than the first four months indicated they would be.

For the southern and western roads, in spite of the increased revenues, the operating income per mile was \$189 less than the estimate, and for the western roads it was \$418 less than what the commission thought it would be when it declined their request for a general advance.

If we disregard the influence which Mr. McAdoo's wishes may or may not have had on the commission's latest decision, these comparisons would indicate that it is merely another example of hind sight that is more acute than foresight.

## Revolutionizing Railroad Organizations

**I**N HIS MESSAGE TO CONGRESS announcing the adoption of government control of the railways, President Wilson said, "Nothing will be altered or disturbed which it is not necessary to disturb." It would appear that the director general of railroads gives the word "necessary" a very broad definition. Mr. McAdoo is proving a bold innovator. Radical changes are being made in the organizations of the railroads.

When Mr. McAdoo was appointed he had the choice of constituting himself, in fact, whether nominally or not, the head of the Railroads' War Board and using the organization it had built up, or of setting it aside and creating a new organization. He did the latter. He has made and still is making great changes in the personnel of the railroad organizations. The Railroads' War Board consisted of five men whom the railway presidents of the country themselves selected. Mr. McAdoo has created a council of his own which does not include any of these men. The railways, under the Railroads' War Board, divided the country into seven districts in each of which there was a committee of railway executives charged with the duty of handling matters primarily concerning their districts. Mr. McAdoo has divided the country into three regions and appointed three regional directors, only one of whom was chairman of one of the former railway district committees. The Railroads' War Board created several committees to handle various branches of its work. Mr. McAdoo has created various offices and committees which have superseded the more important sub-committees of the War Board.

The railway men Mr. McAdoo has appointed on his immediate staff, and his regional directors, are among the ablest in the country. When he has called upon them to help him they have promptly and loyally responded. Probably they are as well equipped to fill the new positions he has created as any men he could have selected. But since the railways, under private control, did not work out the present organization, or create the various positions in it and determine their functions, the responsibility of railway officers for general results under the new system necessarily will be secondary, while that of government control, and of Mr. McAdoo, as the official exercising the authority of government, will be primary. Doubtless nobody recognizes this more clearly than himself.

However good the personnel of an organization, the re-

sults it gets always depend very largely on the form of the organization and on the duties assigned and the opportunities for efficient work afforded to its members. In an editorial in its issue for January 18 (page 148) the *Railway Age* expressed the opinion that one of the greatest dangers to the success of government control was the danger that it would lead to excessive centralization. There seemed reason then to hope that excessive centralization would be avoided. Almost every step Mr. McAdoo has taken, however, has been toward centralization. An increase of centralization under governmental control probably was inevitable, but he seems to be carrying it farther than is necessary. Instead of dividing the country into a considerable number of regions for railroad purposes he has divided it into only three. In the eastern district there are 66,000 miles of railway; in the southern, 51,000 miles, and in the western, 144,000 miles. In each of them there are more miles of railway than in any other entire country. The mileage in the western district is almost three times as great as in any other country. Mr. McAdoo in his instructions to the regional directors said, "Broadly speaking, I wish to give you power to direct railroad operations in your territory so as to handle traffic with the least congestion, the highest efficiency and the greatest expedition. As far as is consistent with these objects you will, of course, keep down operating expenses. I have put responsibility upon you for the entire operating situation."

"Railroad operations" consist in moving traffic, in maintaining equipment, in maintaining way and structures, and in making improvements and enlargements of facilities. The responsibility for "the entire operating situation" of 50,000 to 145,000 miles of railroad is an enormous thing. No railway officers, under private control, ever had responsibility for operation of so much mileage. One of the fundamental principles of organization is that authority should go with responsibility and be commensurate with it. To enable them to bear their great responsibility the regional directors should have great authority, so they can give authority to and hold responsible the executives of the lines in their charge. What is actually being done? The budgets of the individual lines for improvements and maintenance are required to be submitted to the Railroad Administration in Washington. Committees in Washington are determining what kind of locomotives and cars shall be bought for all the railways, and all locomotives, cars and rails are to be bought in Washington. Changes in passenger train service must be submitted to Washington. All wage questions are being submitted to the Railroad Wage Commission in Washington, and Mr. McAdoo said in his instructions to the regional directors that "at least at the outset and until the matter shall take more definite shape" all important labor problems are to be submitted to him.

Examples of this tendency toward centralization might be multiplied. It would appear that initiative regarding most important and some unimportant matters is being taken from the managers of the individual lines, and that even the regional directors are not being given authority commensurate with their responsibility as it has been defined by Mr. McAdoo. Under this system all the brains of the railroad business are not being, and cannot be, fully utilized. Railroad presidents who have been accustomed to planning years ahead regarding the development and operation of the properties in their charge are being obliged to postpone action on many matters of immediate importance until they can get authority and instructions from Washington. The situation is due in part to the fact that Congress took ten weeks to act on the question of the basis of the compensation to be paid to the companies, a matter the British Parliament settled in 48 hours. But in the centralization of organization which is going on Congress has had no part.

The *Railway Age* said in the editorial already quoted

from (issue of January 18) "The central authority can and should indicate the *general* principles on which the railways are to be managed. It can and should indicate the general methods by which these principles are to be carried out;" but when the controlling authority begins to try to do more than this "centralized control will slow down everything instead of speeding up everything, and the increases of efficiency gained by eliminating competition will become small compared with the losses of efficiency caused by impairing the initiative and lessening the sense of keenness and responsibility on the part of the units." The tendency regarding which apprehension was then expressed, has plainly manifested itself, and its effects are beginning to appear. At least so it seems to us. Perhaps we are wrong. Perhaps after Mr. McAdoo feels he is in complete control of the situation he will begin to decentralize as much as is compatible with unified operation. While no signs of any intention to do so are now visible, Mr. McAdoo has shown more than once that he is no rigid doctrinaire, and, therefore, conclusions drawn regarding his policy after he has been in office only 10 weeks may, of course, be shown by further development of his policy, to have been based on inadequate evidence.

Step by step the size of individual railroad systems has increased. Every stage of this development has presented problems of organization and administration of great difficulty. Many of the biggest and finest brains on our railroads have struggled with the problem of so balancing centralization and decentralization on systems of five to ten thousand miles as to get the best results. In many cases, where large systems have not been successfully managed, the failure has been due to centralization which has deprived the officers of divisions and grand divisions of the initiative and authority they needed. How much more important must be the effects of centralization on a system of 260,000 miles. To operate the railways efficiently under present conditions will require not only the greatest exertion and loyalty, but the best *thought* and *judgment*, of all their strong men. Great centralization would prove incompatible with the utilization of the best thought and judgment of the most of them.

Mr. McAdoo is an able man and a very hard worker, as are all of his principal lieutenants. Perhaps they can get the desired results with the organization he is forming and the methods he is using. But he is making changes which do not seem consistent with the President's assurance that nothing would be disturbed which it was not necessary to disturb; and it does seem to us that he is seriously handicapping himself, his immediate lieutenants and the managers of the individual lines by a tendency to carry centralization too far.

## New Books

*The National Association of Corporation Schools. Proceedings of Fifth Annual Convention.* 893 pages. 6 in. by 9 in. Bound in cloth. Published by The National Association of Corporation Schools; F. C. Henderschott, secretary, Irving Place and 15th street, New York City. Price, \$10.

The functions of the association are (1) to develop the efficiency of the individual employee, (2) to increase efficiency in industry, and (3) to influence courses of established educational institutions more favorably toward industry. Among the subjects which were reported upon and discussed at the fifth annual convention were: Administration and supervision of corporation educational work; corporation continuation schools; educational methods; employment plans; special training schools; trade apprenticeship schools; unskilled labor; and vocational guidance.

## Letters to the Editor

### The Depreciation of Railroad Property

KANSAS CITY, MO.

TO THE EDITOR:

A contribution by Julius Kruttschnitt appeared in your issue of December 21, 1917, in criticism of my article on Depreciation, printed two weeks earlier. It would be unfortunate for the cause of the transportation industry if the views there expressed were permitted longer to remain unchallenged.

My distinguished critic affirms that, repairs being adequate and renewals proportionate to the average life of materials, an element of property less than a service-producing unit, exemplified by a series of ten ties, suffers no depreciation by reason of exhaustion. He thereby implies that no value attaches to an element, as such, in dissociation from the organism which it goes to compose; that a non-existent value undergoes no change; and that, while the capacity for usefulness remains perpetually unimpaired, a serviceable unit is incapable of depreciation from inherent causes.

Thus far we are in complete agreement, as abundantly appears, even from a superficial reading of my memorandum. The theory which asserts a 50 per cent mean of depreciation in the ties of a seasoned track when fully maintained, was introduced, not with approbation, but for the purpose of demonstrating the absurd consequences of its adoption. Controversy, therefore, centres upon questions of method.

Rejecting the scientific evidence available, he prefers to rest his case upon the unsupported claim that in the aggregate no deterioration of matter has occurred or is destined to occur. This is supposed to be manifest from responses to the interrogatories following:

Question 1. What kind of ties are used in construction and repairs by the ——— R. R. Answer: Ties whose lives range from zero to as much as 20 years, but which under our traffic and climatic conditions will last on the average 10 years.

Question 2. What kind of ties will be found in the track of the ——— R. R., which makes renewals currently as the necessity therefor becomes apparent? Answer: Ties whose lives range from zero to 20 years, but which under our traffic and climatic conditions last on the average 10 years.

Mr. Kruttschnitt concludes:

As the answers are identical, the average life of ties as found at any time in a properly maintained track is the average life of the class of ties used.

The answer to Question 1 is erroneous. It is not true that ties with a life of zero are employed in the construction or maintenance of any railroad. The foreman of a track gang or a section force who is so irresponsible as habitually to lay ties requiring immediate removal, would invite discipline. The inaccuracy affects the number of terms and the sum of the series, if not the mean co-efficient or average life, and violates the conditions hypothecated. Comparison is therefore instituted at a time, not coincident with the date of construction, but remote from it by a term not less than the life of the least durable tie. So much being evident, the affirmed identity of response is probably incorrect; but even though established, it would afford insufficient proof to sustain a disclaimer of exhaustion.

It is more probable that the duration of service in a series of 10 ties will vary from 5 to 15 years, upon the assumed average of 10 years, with an aggregate of 100 years. Theoretically, no renewals will be necessary until the end of the fifth year. At that time exhaustion will amount to



50 service years ( $10 \times 5$ ), equal to 50 per cent of the initial sum. During the succeeding 10 years all ties in the series will be renewed, and 100 years of useful life ( $10 \times 10$ ) will have been added. But in that term 100 years of serviceable existence ( $10 \times 10$ ) will have expired. Depletion is then equal to 50 per cent, as at the close of the fifth year. Replacement has now become regular, and thenceforth that condition may be expected to remain virtually unaltered. It is manifestly untrue that the expectancy of life in a stated group, collectively regarded, is so great at any time subsequent as when the original installation was made.

The defect in argument is indifferently concealed behind a fanciful distinction between the product obtained by multiplying the number of ties constituting a series into a quantity representing the average life, upon the one hand, and the sum of the several lives whence the average is derived, upon the other; that is to say, between multiplication and continued addition.

The reasoning is sufficiently maintained, if limited in its application to a term following the point where renewals become rhythmic, a matter concerning which there is no dispute. But it fails to dispose of the change in physical condition which takes place in the interval between the date of construction and the time when the seasoning process is complete. It is upon the occurrence of this change that issue is joined.

A conclusion is sound or unsound according as the basis upon which it relies for support is valid or invalid. The ground of explanation excludes the matter to be explained, and the proposition topples to its fall or awaits an efficacious demonstration.

Physical deterioration is a condition which can neither be disguised nor evaded. It is profitable to admit its existence and show that, upon the presumption of effective maintenance, the inference of depreciation consequent upon it is fallaciously deduced; rather than attempt the establishment of one fact by disproving another. Because too much is undertaken nothing is accomplished, and at the same time discredit is cast upon meritorious argument advanced in support of the same conclusion.

Value is not directly related to physical magnitude or duration, unless upon the condition that economic quality is imputed and remains constant. It follows thence that there is no point of correlation between a change in value and any extension or intension of matter, in space or time. Fallacy is insistently perpetrated in the nugatory, though subtle and elusive, attempt at the identification of things that differ; namely, the extent of material substance and the quantum of value.

Argument in refutation commits its sponsor to the elimination of economic quality, involves the abrogation of economic science through its absorption into mathematics, and leads to a purely quantitative theory of value. In its final consequence, he is excluded from the field of economics and restricted in his approach towards value, appreciation or depreciation, to speculation upon concrete quantity. Whenever he crosses that boundary, he is involved in self-contradiction.

Quality in a railroad consists in the capacity for and performance of an efficient service, in consideration of a net reward, present or prospective. Within the limitations above stated, matter expired and to expire is in the nature of excess plant which, although a necessary element of investment, and as such conditionally entitled to reimbursement, is seldom reimbursed currently, and which the devices of perverse ingenuity would expose to uncompensated sacrifice. Moreover, there is always left a remainder fully capable of discharging the office required of it. A state of undiminished or productive efficiency is perpetually maintained.

Value exists solely by virtue of the net force of demand;

that is, demand affected by supply. Railroad property is divorced from all demands other than that for transportation service. Value consequent upon such other demands is in suspense, has no actual existence, and is distinctively hypothetical. Such are actual investment, to which the prevailing concept of depreciation stands imperfectly related, and cost of reproduction.

If the foregoing were not true, it would follow that the premature renewal of ties would occasion an enhancement of value, sufficient in extent to neutralize the depreciation alleged to have accrued; but, so far from that being the case, such course would involve a flagrant dissipation of assets, in the form both of labor and materials, causing no appreciation, and removing no depreciation, but actually producing an augmentation of it. A consideration of unexpired useful life implies instrumentality, imports function, and introduces economic quality. Resort to the monetary unit involves a like consequence.

Once scientific principle is surrendered, control becomes arbitrary, and the carrying trade is exposed helpless to the intrigues of its adversaries.

G. C. HAND.

Vice-President Kansas City Southern.

## Who Wastes the Fuel?

TO THE EDITOR:

Referring to the letters from Messrs. Anderson and Coss (*Railway Age*, March 1, 1918,) criticising my article on fuel waste (*Railway Age*, February 8, 1918,) I would state that there was no intention on my part to pick out any individual or class as being particularly responsible for this waste; the article was written with the idea of demonstrating that it was unjust to place all of the responsibility on the engine crew, which is usually done.

I also wished to start something that would be of value in fuel saving, and to get others thinking of their responsibility for this waste.

That there are other things outside of engine service that need correction has been strongly in evidence this winter, especially the lack of proper terminal facilities. Articles such as those by Messrs. Anderson and Coss will help bring out other factors that need correction, and betterments may result.

Nothing will save fuel or accomplish results like co-operation on the part of all concerned, and I think if we could all get around a big round table, both officials and men (and forget all about departments or position), to talk over conditions and troubles in a friendly manner and a co-operative spirit, and then go out and use the Golden Rule a little more, we would see a wonderful improvement in the results obtained.

For the benefit of the gentlemen who were pleased to criticise my article, I would state that the reason I singled out train despatchers as wasting more coal than anyone else, was that their opportunities for saving or wasting fuel were so much larger per unit than other employees, that I thought it best to make it strong, in order to bring it home to them. If I have done them any injustice or unduly hurt their feelings, I hereby extend to them my apologies. I would, however, call their attention to the fact that enginemen have been and are receiving even stronger criticism constantly, with no more reason for it.

Quite a lot of other shots were made. Was this the only one that hit the mark? I hope not!

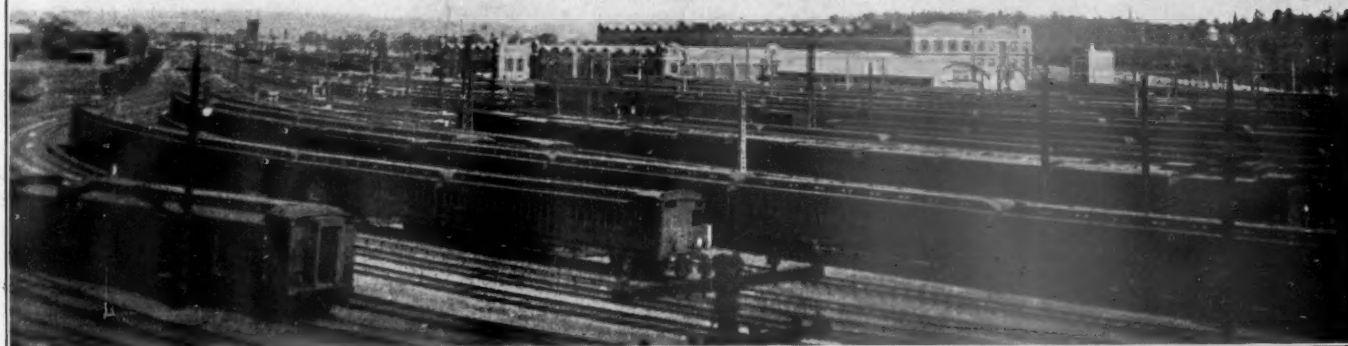
MASTER MECHANIC.

FRANCE TO RAISE PASSENGER FARES.—Passenger rates on the seven trunk railroads of France are to be raised 25 per cent, according to a cable despatch dated March 17 to the New York Sun.



# American Railway Supplies in Australia

Frank Rhea of the Bureau of Foreign and Domestic  
Commerce Returns with Encouraging Reports



On the Recently Electrified Lines at Melbourne, Victoria.

THE RAILWAY SUPPLY MANUFACTURER who has become interested in export trade will find that in Australia and New Zealand he will have one of his biggest and most permanent markets. The several state-owned railways of Australia and New Zealand with their 22,000 miles of railway, import in normal times a large part of their annual requirements in materials and supplies. A steady business combined with an immediate "after the war" demand to make up for the supplies impossible to obtain now because of the lack of shipping, are what lie before the American manufacturer who is going to be wide awake enough to realize his possibilities in this extensive market. The Australians are ready and waiting to buy in the American market car and locomotive specialties and parts, machine tools, signal and signal supply material and maintenance supplies and track tools.

These are the conclusions that follow a reading of the report on American markets for railway materials, equipment and supplies in Australia and New Zealand by Frank Rhea, commercial agent for the Bureau of Foreign and Domestic Commerce, who has recently returned to this country after an extensive trip in Australia and the Far East. Mr. Rhea's investigations have made him an optimist on the opportunities for American railway supply manufacturers in Australia and New Zealand. Although he does not believe that there is a market for finished cars and locomotives in Australia, in view of the desire of Australian labor to build its own railway equipment, he has been particularly impressed by the very fact that the Australians want to build their own cars and locomotives, for to him it means that there is for American manufacturers an important market in Australia for car and locomotive specialties and parts. American built machinery has constituted one of the leading imports into Australia from America for several years. The tendency of the Australians to build their own equipment, the recognized excellence of American machine tools in Australia and the skill with which they are sold there, Mr. Rhea believes, will guarantee a continuance of this extensive business. He emphasizes the necessity, however, of what he terms "application engineering" and draws attention to the fact that the most successful firms are those which have been represented by keen men who have seen to it that the machines sold were the ones best fitted for the work that they were to be called upon to do, and by men who have followed the progress of the work done by these machine tools and assured themselves that they were giving entire satisfaction.

Mr. Rhea spent about one year in the Far East. He left

Vancouver in October, 1916, and spent about four months in Australia and one in New Zealand. He visited all the headquarters of the state and Commonwealth railways and made extensive trips over the various lines. After leaving Australia he spent some time in the Philippine Islands and then went on to China, Japan, Korea and Manchuria in which countries he spent some seven months. His investigations will be issued in two separate reports, the one on Australia with which this article deals, and one on markets in China, Japan, etc., which will be issued later.

Mr. Rhea is well qualified to speak on railway matters, for he has had an extensive experience in both railway and railway supply work. He graduated from the University of Pittsburgh with the degree of civil engineer in 1892. He was first engaged in railway work in the maintenance department of the Norfolk & Western. He later went into the employ of the Union Switch & Signal Company and spent one and one-quarter years as an apprentice on electrical and mechanical work. He then returned to railway service and spent one year as general foreman of signals at the Pennsylvania's Broad street station. He later spent 12½ years in the service of the Pennsylvania Lines West, 5½ years as chief signal inspector in charge of signal construction and reconstruction work, and 7 years as engineer maintenance of way at Zanesville, Ohio, and Logansport, Ohio, being at the latter place in charge of some important reconstruction and double track work. It was at about this time, too, that Mr. Rhea assisted in the preparation of the Rudd-Rhea report relative to unifying the signal practice of the Pennsylvania system which attracted considerable attention. Mr. Rhea then left railway work to enter the railway supply business and spent some five years as commercial engineer with the General Electric Company on all kinds of electrical equipment for railway work. For the three years following, and immediately preceding his trip to the Far East, he was district engineer of the eastern district of the division of valuation of the Interstate Commerce Commission.

## Mr. Rhea's Conclusions

Mr. Rhea's report has been issued by the Bureau of Foreign and Domestic Commerce as Special Agents Series No. 156. It bears the title Railway Materials, Equipment and Supplies in Australia and New Zealand, and covers 164 pages with illustrations. The report covers the Australian and New Zealand railway situation in great detail, both in general, and in relation to the separate states. Lack of space prevents the inclusion of all the salient features brought out,

but suppliers will no doubt be greatly interested in Mr. Rhea's conclusions and suggestions.

In instances where it is believed that American concerns have a chance to obtain future business, attention will be called to that fact, and there will also be a definite indication of the cases in which no such opportunity exists. As an example one may cite the erection of rolling stock either in the railway department's own shops or by Australian manufacturers, with the restriction of the work in some instances to the particular state (as in Victoria and New South Wales). If the railway development of Australia proceeds gradually for the next few years it is probable that little rolling stock will be purchased outside the Commonwealth, but it is likely that, in order to get the benefit of improve-

warranted in giving them little consideration in forecasting what will occur when conditions again become normal. As regards some requirements, the Australian railways are compelled to obtain their present supplies in the United States or do without, and there are really a good many things which they are doing without or of which they are very much reducing their consumption.

During the war and the period of adjustment after its termination, there seems little doubt that American concerns can obtain business if they offer reasonable prices and delivery and if ocean transportation can be secured. What will happen after the end of the war and the period of adjustment it is impossible to forecast, other than to assume that in the course of time matters will again become normal and the development of Australia will resume the tendencies of the past. In this event there will doubtless develop considerable competition for the business of all classes, and apparently much will depend on capable application engineering. Aside from some special lines, such as electrical equipment and lubrication, it would seem that the business in the past has been handled with very little special engineering knowledge on the part of the selling concerns in Australia.

This situation has been well illustrated by the small sales recently of a concern that formerly did considerable business, but that now seems to pay very little attention to the application of the products sold. On the other hand, one notes the very substantial increase in the business of another firm that is making excellent applications in the sales it is handling. The manager of the first concern stated that its policy is to furnish what the customer asks for without giving any particular consideration to its application and that, since the firm handles a first-class line of machine tools, it is the customer's loss if the best application is not had; whereas the other concern not only goes over the application with the customer, studying the best machine available for the purpose before the selection is made, but in addition follows up the performance after installation. The adoption of such a policy, carried out by seasoned and experienced engineers, will, in the writer's opinion, be a necessary arrangement in the future. In brief, it is believed that future business will be largely obtained by competent application or commercial engineering. The adoption of such a policy for certain lines will secure paying business, and, unless it is adopted where it does not now prevail, new business will not be obtained and that which is now being done will be lost in the future when the situation becomes normal after the close of the war.

#### The Question of Representation

The question of representation should be divided into two parts, first as to whether American concerns doing business in Australia will handle the business with their own representatives, negotiating directly with the purchaser, or through agent or indent concerns and, second, what kind of representative should handle the business directly with the customer, whatever arrangement prevails in the first instance.

The answer to the first depends on circumstances to a very great extent, but when the amount of business warrants there are usually good reasons for the parent concern to have a representative in Australia, although a considerable amount of business may be done through agent concerns. For the average American concern the amount of business will only warrant its being handled by agent or indent concerns, but in many instances it seems that the business will justify the sending of special representatives to Australia, as hereafter suggested.

In Australia as in all other parts of the world, there are active, indifferent, and poor agents now in the field, and much depends on the capability of such representatives. In



The Government Railway Systems of Australia

The Port Augusta-Kalgoorlie Railway, the Trans-Continental, has been completed since this map, taken from the Official Year Book, was made.

ments, very considerable quantities of accessory parts will be brought from overseas. In the case of New Zealand it would appear that, if all the necessary railway equipment is built in the Dominion, it will be done at the sacrifice of labor that could be more profitably employed in other ways.

#### Past, Present, and Future Business

In forecasting future business it seems wise to consider the business done in the past and the methods employed in obtaining it. A very considerable amount of railway business has been done in the past, although statistics as to the actual value are difficult (in fact practically impossible) to identify and segregate. At one time a great deal of rail went to Australia, and the supply of mineral oils and lubricants has always come very largely from the United States. A varying amount of accessory rolling-stock parts and shop machinery has come from America, and the electrical equipment has come very largely from this country or from American concerns with British branches.

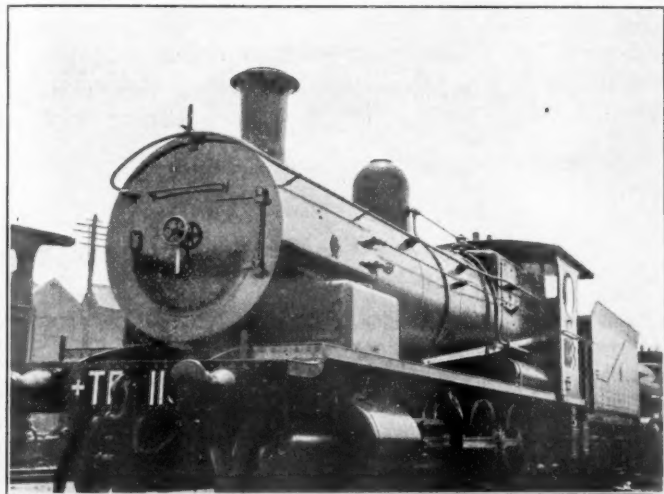
Past business has been obtained mostly in one of the three following ways: First, by concerns with direct representatives in Australia; second, by agent concerns in Australia; third, by the medium of indent orders, in which instances the purchasers either knew just what they wanted or were able to give the indent agent definite information or specifications so that the desired articles could be obtained.

The present war conditions, involving high prices, long delivery, United States export regulations, and almost prohibitive ocean freight rates, are so unusual that one seems



some instances it is probable that agencies were taken as filling-in lines and to fall back on when the regular supply was not available.

With the conviction of the desirability and the probable necessity of application or commercial engineering as the best means of obtaining and holding railway business in Australia, and also the advisability of sending seasoned men who will naturally command good salaries, the question arises how this can be arranged and made workable without costing more than would be warranted. It is the writer's opinion, based on investigation and discussion with several men experienced in handling Australian business, that one high-grade man could frequently represent several



One of the Latest Type of Freight Locomotives in Use in New South Wales

firms whose products can be grouped—for example, an experienced mechanical-branch man could represent all branches of shop machinery, another man could represent all lines of locomotive and car appliances, or one man could represent both permanent way and works materials and track appliances. Also, with the conditions existing in Australia, there appears to be no reason why a man of the proper adaptability could not work with several concerns in Australia (even when these concerns are handling competing lines), if such a man is sent out at the expense of the American concerns. This, of course, would require men of good common sense but not necessarily men of any unusual ability. Since there are a number of associations among the manufacturers of railway materials, equipment, and supplies for furthering the interests of these manufacturers with the American railways, it would seem desirable that these same associations should get together for the advancement of their foreign business. For instance, such associations as the Railway Business Association, the National Railway Appliance Association, the Electric Railway Manufacturers Association, or even a community of the associations might get together and arrange for experienced application engineers to visit Australia—doing so as actual representatives to obtain business for the interested concerns and working with such representatives as these concerns may have in Australia or arranging for additional agents. There are also a number of concerns organized for the handling of foreign business (particularly some of those recently organized) that might arrange for the representation of complete lines as above suggested, and then follow up by sending out special application engineers.

In considering such an extensive field as railway materials, equipment, and supplies, a division into groups seems advisable. The following grouping is based on what one

experienced engineering salesman might reasonably be expected to be familiar with, and is also somewhat along the lines of that made by some of the larger concerns handling railway business in America.

### Contracting

In the writer's opinion, with the present arrangement of handling all public works and the prevailing labor conditions, Australia is not an attractive field for American contracting concerns to enter into and follow the present American practices of pushing the work to a conclusion in the shortest possible time by the use of labor-saving machinery, particularly expensive outfits worked with day and night shifts. There is no doubt that, to develop fully the material resources of Australia, the situation warrants such treatment, but organized labor objects to such procedure and public opinion supports this position, or at least permits this condition to exist. It would seem, however, that if some of the large projects contemplated, such as the unification of the railway gages, are undertaken, some concessions will have to be made.

### Roadway Machines

Steam shovels and other similar equipment are little used in Australian railway construction. While this class of equipment could no doubt be used to very considerable advantage, particularly in some of the grade and alinement revision work being undertaken in several of the states, it is very doubtful whether such methods will be adopted so long as the present labor conditions continue. The New Zealand railways are much better equipped in this respect and may increase this equipment if further extensive grade and alinement revisions now under contemplation are undertaken.

### Bridges

Bridges are not frequent, and those that do occur are usually small, with few foundation difficulties. In addition, there is a decided tendency for the railway departments to do their own fabricating and erection. This is



Sydney (N. S. W.) Express Leaving Wallangarra on the Queensland Border

encouraged by the much higher tariffs on fabricated materials than on plain materials. Also the New Zealand Railways are the only system that has adopted a set of standard designs and is prepared to buy bridges except in detail, as used. In the future the New Zealand Railways expect to buy their bridges in quantity.

Bridge paints, on account of the large proportion of dry weather, last much longer in Australia than the average in America. This does not apply to New Zealand, where on



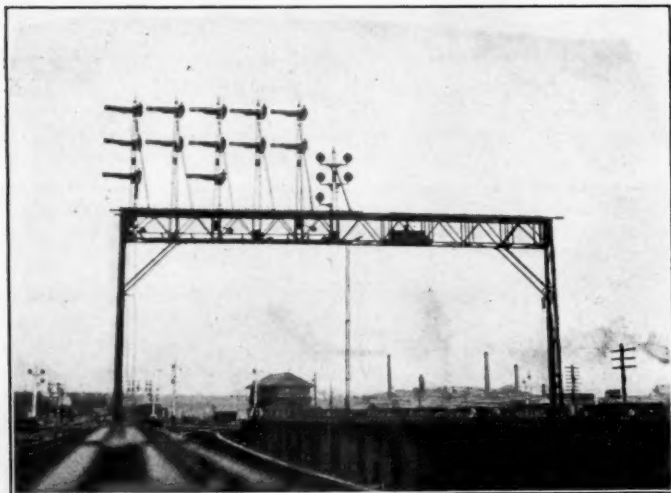
account of the amount of wet and warm weather the life of bridge paint is probably shorter than in America.

#### Building Materials

The principal market for building materials is for galvanized or substitute roofing material which will not require sheeting, and such substitutes for wood as beaver board. The supply of Australian hardwoods will take care of the needs for building wood, except soft wood required for drawers, shelving, and similar uses where it has to be worked and for which pine will probably continue to be imported from America. Just how far it is economical to go in Australia in the use of protected materials as a substitute for galvanized iron is dependent to a very large extent on the location. Where not subject to special deteriorating influences, galvanized iron apparently has a longer life in Australia and New Zealand than is the average in America, and its use is very much more extensive in all parts of Australasia than in America; in fact, this is the case everywhere in the Far East.

#### Coaling Stations

The handling of locomotive coal is done to a very large extent by the use of coaling trestles or man-powered handling outfits or, in some instances, with small locomotive cranes, the latter being particularly the case in New Zealand. Thus far very few really up-to-date coal and ash handling plants have been installed in Australia. At many points it seems probable that these will be installed in the future, but in a number of instances an impression seemed to prevail that the present arrangements were much more reliable than the more modern devices; therefore it is difficult to predict what the future improvements will be along



Former Method of Route Signaling on Victorian Railways

this line, although it would appear almost a necessity to make improvements in some cases to take care of the business as it grows.

#### Water-Treatment Plants

Considerable up-to-date water-treatment apparatus has been installed in a number of the states and, with the water conditions existing in a large part of Western Australia, South Australia, and the western sections of Queensland and New South Wales, further installations will no doubt be made. In some instances neutralizing compounds are practicable, and an American company is introducing its products, which, in view of some of the results obtained in the United States and Canada, should make a decided success in some parts of Australia.

#### Grain Elevators

The question of grain elevators was covered at some length in connection with the New South Wales Railways. In the writer's opinion, there is no doubt of the desirability of adopting arrangements to handle grains (particularly wheat) in bulk in all of the Australian states, but the project of a wholesale conversion according to the plans now out for tenders for the erection of elevators seems of doubtful practicability. It is advised, therefore, that American concerns go over this situation very carefully before contracting for erection complete, which would probably include the financing of the project for the government of the state in which the work is done. These remarks, of course, do not apply to the furnishing of the machinery and materials for some one else to erect and finance.

#### Wharf and Pier Equipment

The use of wharf and pier machinery has been, to a considerable extent, influenced by the labor situation, the wharf



Present Method of Speed Signaling on Victorian Railways

workers being one of the most powerful unions in Australia and New Zealand. At present, however, a necessity exists for speeding up the movement of shipping. The wharves in New Zealand are much better equipped in this respect than those in Australia. To a certain extent this is probably due to the authority exercised by the various harbor boards in New Zealand, who have power to borrow money for improvements and collect wharfage charges in a more comprehensive way than is the case in Australia.

#### Fencing Materials—Ties

Practically all railway lines have to be fenced by the department in all the Australian states and New Zealand. The present practice is to use a rather heavy, smooth, straight wire with frequent anchor posts equipped with expensive slack adjusters. In some instances intervening strands of barbed wire are used, but in no case did the writer see any of the special spiraled wire that is commonly used for right-of-way fences on most American railways. On inquiry, not a single case was found where attention had been called to this wire by the sellers of fencing materials, and none of the sellers seem to know of the product. Consequently there appears to be a very good opportunity for the general introduction of American fencing materials. These remarks also apply to the use of steel fence posts, especially for the drier parts of Australia, where the ravages of the white ants are most serious.

In general, Australia has sufficient timber in sight to take care of present needs, including those of South Australia and New Zealand, both of which have to draw on outside

supplies. The ravages of the white ants, the favorable weather conditions, and the light traffic would appear to make certain parts of Australia, particularly the northern lines of South Australia, a good place for the use of steel ties if they can be delivered there at a reasonable price. The engineering branch of the South Australian railways has already looked into the use of steel ties and is satisfied with respect to their practicability. Up to the present time, however, it has been found more economical to use jarrah sleepers from Western Australia, costing something over \$1 each.

### Rails

It is presumed that the two steel plants now in operation in Australia will be able to take care of the normal rail requirements, but in such case the entire production would apparently be required for this purpose and other lines would not be produced. Such a condition seems very unlikely. During the present very difficult period as regards the obtaining of materials, it is safe to say that the normal rail renewals are not being made, although with the lighter wheel loads and lighter traffic it is probable that the same relative wear does not occur as takes place on the American railways, even when allowances are made for the greater amount of curvature and the steeper grades. New Zealand, having no steel plants, gets all its supplies from abroad, and it is not probable, for the present at least, that New Zealand will depend to any great extent on Australia, although this may possibly be the case when a scarcity of shipping prevails.

### Frogs and Switches (Points and Crossings)

The present practice is for all the state railway departments of Australia and the New Zealand railways to manufacture in their own shops, or to have manufactured by concerns in their respective states, all their requirements in frogs, switches, crossings, switch stands, derails, and guard rails, and there seems little doubt that this practice, for the present at least, will be continued. It would appear, however, that they might advantageously employ the special types of light-weight guard rails now coming into general use in America, that they would at least be warranted in installing hardened-faced frogs and switches in some particular situations, and that these could be produced by importing the hardened parts and completing the work in the railway shops. A few of the lifting type of derails, especially the "Hayes" design, have been used, but these are very infrequent as compared to the total in service. Many are of the complete switch type, which are more expensive to install and maintain than the most costly designs of the lifting type.

### Rail Fastenings

As a general practice, the angle bars are bought with the rail. All the Australian state railways follow the same course with the manufacture or purchase of their supply of dog spikes and track bolts as with their frogs and switches. The supply in New Zealand is usually purchased abroad, particularly fang bolts and screw spikes. At present no guard rail clamps are used, and few tie plates, except in some cases around turnouts. It would seem that both of these, particularly the guard-rail clamps, could be adopted with much advantage, and the track men to whom the writer explained the use of guard-rail clamps were very much interested in their application. The use of rail anchors is becoming very extensive, and most of those used thus far are of the Vaughn design, furnished by the Railway Track Supply Co., of London. One point that applies to the maintenance of all the patented rail anchors, when employed on Australian railways, is the necessity of inspection to prevent the ballast from loosening the rail anchor as the result of

the very much fuller ballast section used, because of the sleepers being only 5 in. in thickness.

### Roadway and Track Tools

The writer assumed at first that it would not be worth while to follow up the subject of roadway and track tools, but after some inspection and inquiry it was found that there was not the difference in the design and equipment of tools that might naturally be expected, and that in a considerable number of instances the American track tool would be very well received by the Australian "ganger," as he is called. A very considerable use of American hand tools by all classes of railway mechanics was also noted.

### Signals

Materials and supplies for mechanical interlockings, lock and block, and staff or tablet, will probably be bought as in the past, particularly as all these requirements are fully standardized; but in the materials and supplies that enter into power interlocking, automatic signals, electric parts for the control of lock and block and staff or tablet, and all kinds of electrical accessory parts, considerable business has been and will continue to be done. This is one of the lines of business that requires a very considerable amount of application engineering.

The signal situation is a good example of the inclination on the part of some of the Australian state railway departments to manufacture their own requirements. In some instances the signal branch has a considerable manufacturing plant and manufactures not only the well-established parts but the more difficult electrical parts as well—this in some instances with apparent disregard of any existing patent restrictions or objections to the adoption bodily of designs that are trade assets as a result of years of experience. The writer has yet to find an American railway that has made a success of this policy, although it has been tried in several instances and at times seemed desirable on account of the apparently high prices demanded by the manufacturers. It is not probable that the Australian railways will succeed any better, although they may in the meanwhile acquire a supply of poor (and in some cases possibly unsafe) electrical railway-signal apparatus. These remarks regarding patents also apply in connection with several other situations, particularly as regards patented locomotive and car devices.

As already stated, there seems to be a very substantial field for the installation of selective telephone apparatus for the "central control" of train movements, supplementing the signal equipment or rather co-ordinating with the signal systems. The fact should be appreciated that this is not an introduction of the American method of train running, which is in bad repute with Australian railway officials.

Both of the two largest American railway signaling companies have representatives in Australia, who are doing excellent work in promoting the sale of American electric railway signaling devices and also signal accessory apparatus.

### Rolling Stock

It is the general policy for the railway department of each state to erect its own equipment in its own shops or to purchase in Australia or, in some cases, in the United States. It is probable that no great amount of complete equipment will be purchased abroad. South Australia and Western Australia will probably go to the other Australian states for locomotives, and New Zealand and Tasmania may go abroad. Purchases have been made in the past, are now being made under the present modified conditions, and probably will be made in the future, of much material and equipment in the form of slabs for engine frames, boiler plates and flues, axles, tires, wheel centers, air hose, injectors, lubricators, gages, and similar parts, notwithstanding



ing the decided tendency to manufacture these parts as well as to erect the rolling stock. The American railways have found as a result of long experience that while they may be able to erect their own rolling stock to advantage they seldom succeed in manufacturing the specialties as well or as cheaply as the concerns that devote all their attention to such lines, with a specially trained staff. There will probably be in Australia a growing realization of this truth; therefore it seems warranted to conclude that a considerable amount of this business will continue to go to the concerns producing special lines unless inferior products are to be used. It seems probable that in the course of time improvements will be made in the adoption of automatic car couplers, particularly for the handling of coal to expedite its classification, and that air train signals will be adopted.

In connection with any materials or equipment going to New Zealand it may be noted that the North American hardwoods experience the same short life in New Zealand as in the tropics, and therefore care should be exercised not to use such woods but, instead, suitable woods that will resist the deteriorating influences of this climate. These same remarks apply to agricultural implements, which are often condemned on account of the failure to use woods that will stand the New Zealand climate. It is also well, in furnishing locomotives, to consider the matter of very robust frames and bearings, on account of the excessive wear occasioned by the sharp curves and steep grades on most of the lines. This applies especially to New Zealand and Tasmania.

#### Machinery for Shops

Among the imports from the United States during the last few years, machinery constitutes the largest item, and in the writer's opinion this will continue to be the case, particularly if there is a continuance of the present policy by which the railway departments manufacture and erect their own rolling stock and similar requirements. It is believed that in this line competent application engineering will be necessary in Australia and New Zealand to develop and hold the business for American products, though as a rule the railway officials are inclined to admit the superiority of most of the American machine tools.

#### Oil Storage and Handling

In general, very little modern apparatus for oil storage and handling has been installed, and that which has been employed is nearly all of special design, usually manufactured by the department, and generally quite expensive. An American company now has a representative in Australia and in time should build up a large line of business with its excellent equipment, especially if it follows the methods of application engineering that have characterized much of its work in the United States.

#### Electrical Equipment

The line of business connected with power houses and substations is well looked after by American concerns now in the field, which have always obtained a considerable portion of the business either directly or through British branches.

The same remarks apply to electrical car equipment.

As regards overhead-contact materials, substantially the same remarks apply, although some of the American concerns manufacturing certain specialties might obtain additional business from Australian and New Zealand tramways.

Mention might also be made of the electrification of the Melbourne Suburban Railways and the Sydney metropolitan scheme and also the probable electrification of the Perth suburban lines. For this last-named project Mertz & McLellan are the consulting engineers.

#### Fuel and Lubricants

For the present and for a long time to come all fuel for Australian and New Zealand railways will be furnished locally or from other Australian states.

At present a very large part of all the lubricants, and also a large part of the mineral oils, used by the Australian and New Zealand transportation systems, are furnished by American concerns.

#### Financial and Corporate Offices Not to be Charged to Operating Expenses

THE EXPENSES OF RAILROAD OFFICES, including salaries of officers, devoted to financial and corporate affairs as distinguished from operation, may not be charged to operating expenses after April 1, except as expressly authorized by the Railroad Administration, according to Circular No. 10, issued on March 18, by Director General McAdoo. Although no official explanation has been made, it is understood that the order applies to such officers as chairmen of boards of directors and of executive committees and in some cases to vice-presidents, as well as to stock transfer and bond registering offices and other offices maintained in New York and elsewhere which are considered not necessary for the purposes of the Railroad Administration in its control of the roads, but properly chargeable to the corporations.

On February 23 Mr. McAdoo addressed a circular to the roads asking for detailed information regarding the expense of financial offices in New York and elsewhere and the circular is the result.

Circular No. 10 is as follows:

"The question has been raised as to whether the Government ought to pay any part of the expense of the New York offices (including salaries of officers at New York) of railroad companies, except to the extent that such expenses are on account of operating offices properly located at New York; and, on the same principle, as to whether the Government is under any obligation to pay the expenses of offices of any of the companies in any locality, devoted to financial and corporate matters as distinguished from matters pertaining to the physical operation of the railroad properties.

"Even if it should be decided that the necessary expenses for some of the purposes for which such New York offices, and to some extent similar offices at other places, should be chargeable against the government, it seems very clear that in many instances the expenses currently so charged are greatly in excess of what is necessary to accomplish the purposes which, according to a reasonable construction, would be chargeable against the government.

"Under the circumstances it is desired that each carrier claiming that any such expense should be chargeable against the government shall present a statement showing the amount of this expense and what amount, if any, it is claimed should fairly be charged to the government, and the reasons why the carrier believes such expense is so chargeable. And on and after April 1, 1918, the said expense shall cease to be charged against operating income, except in so far as the same shall be expressly authorized after the facts shall have been considered as provided herein."

In cases where the same man is both chairman of the board or of the executive committee and president, or where other officers devote their time both to financial and operating matters, it is expected that application will be made to the Railroad Administration as provided in the circular and it is understood that in such cases the portion of the expense or the salary considered chargeable to corporate affairs will be segregated, to be paid by the company out of its guarantee.



# Railroad Control Bill Passed by the House

Passed in Form Reported by Conferees After Elimination  
of Restriction on State Taxation

WASHINGTON, D. C.

THE RAILROAD CONTROL BILL, which was passed by the Senate on March 13 after the conferees had struck out the provision intended to prevent states from increasing their taxation of railroad property, was passed by the House on March 14 by a vote of 303 to 26.

The conference report was passed with comparatively little debate in the House, although several representatives took occasion to express their objection to the broad powers granted to the President in Section 10, which provides that carriers while under federal control shall be subject to all laws and liabilities as common carriers "except in so far as may be inconsistent with the provisions of this act or any other act applicable to such federal control or with any order of the President." Chairman Sims of the Committee on Interstate and Foreign Commerce defended this section and Representative Esch, one of the conferees, declared that if the words are properly interpreted they do not give the President the broad and unlimited power to repeal or suspend any statute of the United States or any state that so many had objected to.

Mr. Esch also pointed out that the language of the conference report adopted no longer includes the term "standard return" but provides for "just compensation, not exceeding a sum equivalent as nearly as may be" to the average annual operating income.

The compromise as to the rate-making power seemed to be generally satisfactory to the House.

Those who voted against the bill were Representatives Bankhead, Burnett, Church, Dowell, Good, Green of Iowa, Haugen, Helm, Huddleston, Johnson of Washington, Kearns, Knutson, McLaughlin of Michigan, McLemore, Mason, Ramseyer, Reavis, Reed, Steenerson, Sweet, Thomas, Townner, Williams, Wingo, Wood of Indiana, and Woods of Iowa.

Three Congressmen voted "present" and 96 did not vote.

The passage of the bill in the Senate on March 13, as reported in last week's issue, was attended with a rather lively controversy over the provision inserted by the conferees in Section 15, providing that no state or subdivision thereof should assess taxes on railroad property during the period of federal control in excess of the ratio which the taxes derived from railroad property bore to the total taxes of such state or subdivision for the year previous to federal control. The objection to this was that it unduly restricted the taxing powers of the states, whereas both the Senate and House bills as originally passed had contained a provision that nothing in the act should be construed to amend, repeal, impair or affect the existing laws or powers of the states in relation to taxation. The House bill, however, had added a further provision which made it necessary for the conferees to adopt a compromise and the compromise proposed aroused the objection of Senators who wished all the rights of states to be preserved. Other Senators advocated the compromise on the ground that it was necessary to protect the federal government against the power of a state to increase taxation in such a way as to impose a burden on the federal government, which is now responsible for the expenses of the railroads, including taxes.

After considerable discussion the vice-president sustained a point of order against this provision of the conference report as being new matter not contained in either of the original bills and the ruling of the chair was sustained by a vote of 51 to 23. The conference report was then re-com-

mitted to the conference committee, which held a hurried meeting and reported back, striking out the provision objected to in time to secure the passage of the bill in the Senate on the same day.

The final vote was 47 to 8, those who voted against the bill being Senators Borah, Cummins, Gore, Gronna, Johnson of California, Kenyon, Norris and Townsend. Forty Senators did not vote. When the bill was originally passed in the Senate no roll call was taken. Several Senators who were opposed to the bill took occasion to express their arguments against it before the final passage. Senator Townsend of Michigan objected on the ground that the representative of the Director General who had written most of the bill had included in it many provisions which he did not consider necessary for war purposes, such as the provision that state and federal laws could be set aside by the President's order and the provision allowing the President to initiate rates. "I do not believe that any new law is necessary," he said, "in order to give the President ample power to do everything that is necessary to be done for the railroads for facilitating the prosecution of the war or growing out of the war emergency."

Senator Lewis of Illinois declared that while he was in favor of government ownership it would have been an exhibition of bad faith for the government to use the war emergency for the purpose of taking over the roads permanently and that the question of government ownership should be settled on its merits. He also took occasion to say that if he had his way he would repeal the act creating the Interstate Commerce Commission, giving the President power to make rates and to create bodies representing the government to be located in various parts of the country so that shippers could be heard without coming to Washington.

Senator Johnson of California reiterated his objection that the bill is "unfair and unjust to the people and so outrageously generous to the railroad companies that its enactment into law is shameful and iniquitous."

Senator Cummins also made a speech against the bill, objecting to the compensation as too liberal and against giving the President power to initiate rates. He predicted that within six months there would be "a stupendous" advance in freight rates and that the commission would approve them.

Senator Jones of Washington declared that although he thought the bill was unfair and unjust to the people it seemed necessary for the conduct of the war and that he would vote for it.

The text of the conference report was published in full in last week's issue. As passed only the proviso in section 15 was eliminated, not the entire section, as was erroneously stated last week.

## Rate-Making Under Government Control

Shippers are waiting anxiously to see how the authority to initiate rates will be exercised by the Railroad Administration when the bill becomes a law. While it is understood that the Director General does not care to concern himself to any considerable extent with routine matters pertaining to rates and their adjustment it is also perfectly well understood that he is vitally interested in the power to increase rates sufficiently to cover all expenses and the guarantees to the railroads as well as in the power to make any important change in rates that he considers desirable without the necessity for first securing the approval of the

interstate and state commissions. Under the new law he can act first and put a rate into effect and the federal commission can overrule him later if it wants to, but nothing is said that would give a state commission any authority to interfere in any way with any rates he should initiate in the same way that he initiated the increased demurrage rates and put them into effect for both state and interstate traffic. Even before the passage of the law the President's proclamation assumed, and Mr. McAdoo has been acting on the assumption, that he had the power to change rates, and while he has gone through the form of requesting the approval of the commission, the commission in every case has authorized the filing of the tariffs. On the day that the law was expected to be signed the Railroad Administration announced an excess fare on the Pennsylvania's parlor car train between New York and Washington, although the commission a short time ago denied the railroad permission to impose such a charge. On the following day the commission announced its approval of the tariff.

What is concerning shippers is the question as to the extent to which the Railroad Administration intends to initiate rates without hearings or notice to the shippers. Under the amendment to the fifteenth section of the law passed last August railroads have had to secure the commission's approval before even filing a tariff and the tariff when filed, of course, might be suspended. Now, apparently the administration can put a rate into effect practically without notice, and there has been much complaint upon the part of shippers that this power is lodged in a man whose principal advisors are railroad men.

The case of the proposed "spotting charge" is an example of the reason for this attitude as expressed by shippers who have recently been in Washington. The proposal to charge \$2 a car for placing on an industrial siding and \$1 a car for spotting at a particular point on the siding was drawn up in the Traffic Division. It is understood that it had not yet been referred to Mr. McAdoo when the shippers of the country heard about it and began to protest vigorously. How far the proposal had gone and what were the chances of its being put into effect are still matters of uncertainty, but it appears that a member of Mr. McAdoo's staff thought it would be well to find out what the state commissions thought about it and that the news was very rapidly disseminated among them and through them to the shippers, by way of C. E. Elmquist, the Washington representative of the state commissions. Even before the proposed plan had traveled from the traffic department on the tenth floor of the Interstate Commerce Commission building to Mr. McAdoo's office on the ninth floor a flood of telegrams had come to Mr. McAdoo from all points of the compass. Telegrams also went to the senators and representatives on Capitol Hill, arriving there about the time that the conferees were trying to adjust the differences between the Senate and the House bills as to the final rate-making authority. This was also about the time that a committee representing the National Industrial Traffic League, including G. M. Freer, H. C. Barlow, W. H. Chander, R. D. Sangster and C. E. Childe, arrived in Washington in an effort to rescue the commission's final authority over rates which was then trembling in the balance. While it is understood that the results of the shippers' visit to the capitol was not entirely satisfactory to them it is believed that the storm aroused over the spotting charges may have added to the difficulty which prevented the conferees from accepting the proposed compromise which Senator Smith had brought from the White House, which would have required the commission to make rates high enough to pay all expenses, instead of merely requiring it to take them into consideration.

The following petition regarding the rate-making powers was presented to the conferees on behalf of the National Industrial Traffic League:

### Protest of National Industrial Traffic League

"Your petitioner, the National Industrial Traffic League, an organization comprising in its membership the principal commercial organizations and industrial and commercial concerns located throughout the United States, and representing, substantially speaking, 300,000 shippers, addresses your honorable committee in respect to the railroad bill, now in conference. Your petitioner is particularly concerned respecting section 10 of the Senate bill and section 11 of the House bill, that portion of the same which refers to the making and prescribing of rates, fares, classifications, rules and regulations of the carriers while under federal control.

"No one appreciates more fully than the members of this organization the fact that the country is at war and further that many old ways of doing things must bend, to the end that supreme effort of the nation to win the war shall not be embarrassed; but we are convinced this bending can be done in an orderly form and manner, as now provided by law, and all the necessary and desired results be obtained.

"The railways of the country are in the hands of the government for the period of the war and for some fixed period following the close of the war.

"We understand, in general terms, the purpose of taking over the roads was principally twofold, viz., to co-ordinate their activities to the great aim of winning the war and the further purpose of fairly conserving their financial status through the period of great borrowing by the government. In these laudable efforts we are all in accord. In the bringing of these aims to a successful conclusion it may be necessary for the government to deal with the rates, fares, rules, regulations, etc., of the carriers, and it is to this phase of the pending bills that we address ourselves.

"We take it for granted the welfare of the commerce and industry of the country is second only to the one great purpose of winning the war. Our contention is that as the railroad bills now read, the welfare of the commerce and industry of the country may be unnecessarily placed in jeopardy.

"The government is in possession of the roads; it exercises its control through the agency of the Director-General, who has surrounded himself with a cabinet of principals and assistants drawn almost exclusively from the railroad service. None of these gentlemen has had, substantially speaking, any training on the commercial or industrial side of the question, outside of the railroad point of view. These men are undoubtedly of ability and capacity in their particular line of training, yet we may say with propriety their training has given them in many respects an entirely different point of view from that held by many gentlemen trained in commerce and industry. We take it to be a fair assumption that the Director-General will be guided in great measure in his conduct of the railroads by the counsel and advice of those he has called about him. Our point is this: In the very nature of things, can these gentlemen always have as clearly in mind the interests of the public as those of the carriers?

"Permit us to illustrate what we have particularly in mind. The demurrage rules were the outcome of eight years' negotiations between shippers and carriers under the guidance of the Interstate Commerce Commission. They had been changed from time to time by mutual agreements. So far as the shippers were advised, this method of handling the question was mutually satisfactory to the shipping public and to the carriers. In January of this year there appeared, without notice to the shipping public, a new set of rules differing materially from those long in effect. After a fruitless personal appeal to the Director-General, a written protest was filed in behalf of the shippers by your petitioner. It was pointed out that the new rules would not accomplish the desired results. The final outcome was that the representatives of your petitioner were



requested to return to Washington for conference with representatives of the carriers and the Interstate Commerce Commission. In this conference we proceeded in the manner long followed; the rules were again revised by mutual agreement and at the request of the Director-General went into effect in place of those previously promulgated by him.

"It is our desire to avoid and prevent a repetition of such instances. For more than thirty years the Interstate Commerce Commission, created under the authority of Congress, has had the full confidence of the shipping public; nowhere can be found a more useful and patriotic arm of the government. To that body may safely be left the determination of all questions affecting rates, fares, rules, etc.

"It is contended by some that the ultimate control of rate-making is a necessary part of the war power of the President. Your petitioner cannot conceive of any condition arising out of the war in which the President could be hampered or embarrassed in his control and operation of the carriers by reason of the rate-making power remaining in the jurisdiction of the Interstate Commerce Commission. Under the stress of war it may be desirable to change existing rates, fares, charges and regulations affecting shippers; but the successful operation of the railroads for war purposes would not be affected by the amount of the rates charged. As a matter of justice and public policy the commerce of the country should pay an adequate charge for transportation. If changes in rates become necessary, the burden should be equitably distributed by a tribunal well versed in all phases of the subject, so as to disturb the commerce and well-being of the country as little as possible. The rate adjustments of the United States are delicately balanced and related; any disturbance thereof should be had only after a full investigation by a disinterested body.

"For more than thirty years Congress has authorized the Interstate Commerce Commission to execute and enforce a well-considered and well-rounded form of regulation of carriers. That body may well be said to be the only body qualified by long years of experience and training fully and adequately to consider and determine all questions within the jurisdiction of the act to regulate commerce. The control of rate-making is a legislative function vested in Congress and delegated by Congress to the Interstate Commerce Commission as a branch of the legislative department of the government. We earnestly insist that the power and jurisdiction be left unimpaired, to be exercised in accordance with the act to regulate commerce as amended.

"It is our firm conviction that this can safely be done and all necessary and desirable results be obtained. By so doing this legislative function will be retained where you have placed it, viz., in the agency of the Congress created for the purpose and qualified by experience.

"We are persuaded that even the necessities of war do not justify or make necessary the destruction of all that has been accomplished during the past 30 years of regulation of the carriers by the Interstate Commerce Commission.

"As a war measure Congress authorizes the President to make regulations as to the imports which should be permitted, but does not authorize him to fix the customs duties; it permits the Postmaster-General to operate the postal system, but does not authorize him to fix rates of postage. There certainly is no greater necessity to authorize the President to fix the rates of transportation over the railroads which you permit him to operate as a war measure.

"Wherefore, your petitioner earnestly prays that the paragraphs in the two bills dealing with rate regulation and control shall be so amended as to leave to the Interstate Commerce Commission the determination of all questions arising in respect thereof as now embodied in the act to regulate commerce and its amendments."

Since the first protests were received, the Director General has received a considerable number of communications from

other shippers urging him to impose the proposed charge for service on industrial sidings. Apparently these have come from the shippers who use the public team tracks.

### Express Companies

No decision has yet been reached on the question as to whether the express companies are to be taken over by the government, but the impression is being gained that they will not be. It is understood that the four principal express companies, the Wells Fargo, the Adams, the American and the United States, have asked to be taken over on terms similar to those applied to the railroads, on the ground that their business is so closely intertwined with that of the railroads and because their financial position has been steadily growing worse. It is understood that the influence of the post-office department has been against taking over the express business because the Postmaster General has always taken the position that the post-office department could handle the business through the parcel post and that if it were taken under the wing of the Railroad Administration, two departments of the government would be competing against each other.

The Railroad Administration has endeavored to sound the opinion of the state railroad commissions on the subject through their representative at Washington, Charles E. Elmquist, and he has asked the commissions for an expression of their views in reply to a circular letter. Among the questions he asked were as to whether the four companies or all of them should be taken over as a war measure, what compensation should be allowed if they are taken over, and whether they should be returned to private ownership after the war.

The director-general is now authorized to proceed with the negotiations with the railroads regarding their compensation and with plans for expenditures for equipment and improvements as well as for financing the roads. It is understood that work has been under way for some time on the preparation of contracts to be made with the roads and that the Interstate Commerce Commission is about ready to certify the amount of the average net operating income for three years which is made the basis of compensation except in special cases. A plan of accounting will be devised by Director Prouty of the division of public service and accounting. Conferences regarding the form of contract are being held between Judge Payne, general counsel of the Railroad Administration and the Law Committee of the Railway Executives Advisory Committee.

Improvements may be paid for in part out of the revolving fund consisting of the \$500,000,000 appropriation and the surplus earnings above the guarantee, where the railroads are not able to finance them. Aid may be extended to the roads in refunding maturing obligations and financial assistance may also be given the roads in the form of loans by the War Finance Corporation if the bill providing for it, now pending before Congress, is passed. In hearings on that bill Director-General McAdoo stated that one of its purposes was to aid some of the railroads in meeting their requirements and that that was one of the reasons why the appropriation asked was only \$500,000,000. That sum, he said, would not be sufficient to take care of the railroads even for this year.

**BRIGHTON RAILWAY'S ROLL OF HONOR.**—The Brighton Railway of England has issued the sixteenth edition of its Roll of Honor containing the names of its staff who have died in active service. The figures are up to the end of the year 1917, and show that the total number of men enlisted from the Brighton Railway up to that date was 4,814, which represents 29.6 per cent of the staff; 338 have died in active service, which is 7.02 per cent of the men enlisted.

## Planting Trees As Protection Against Drifting Snow

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has undertaken an active program of tree planting as a means of protecting its tracks from drifting snow. It is planned to plant these trees along 100 miles of right of way each year and although this work was first undertaken as late as 1914, trees have already been planted along 250 miles of right of way and 70 miles additional line is ready for planting this spring. Up to the present time these trees have all been planted along the lines in North Dakota but



Original Condition of Many of the Cuts

it is planned to extend this work into Wisconsin this year.

In undertaking this work it was first necessary to develop a method of planting the trees economically. For this purpose a machine has been devised which will plant 8,000 trees a day with three men, or as many trees as 80 men could set in a day by hand. These trees are also said to be planted more satisfactorily, while they are all set at a uniform depth.

Careful consideration was given to the selection of the type of tree to plant, bearing in mind the kinds of soil which would be encountered along the cuts to be protected.



The Tree Planter in Action

Several kinds of willows were tried and the laurel-leaved willow was finally selected as the hardiest. It is planted in the outer row and also in some of the rows nearest the track. The Buffalo berry, carragana, buckthorn and artemisia are also used to some extent in the outside row, the purpose being to provide a low growing spreading tree or shrub with no big openings through which the wind can pass readily. Green ash or cottonwood is planted in the second row and green ash or box elder in the third row with the remaining five rows in willows. Eight rows of

trees are planted on the north and west sides of cuts and six rows on the south and east sides. These will be cut back periodically one row at a time as the trees develop.

The original right of way was 50 ft. wide in most instances, but this was soon found to be too narrow for effective tree planting so that 75 ft. additional is being purchased on the north and west sides of the cuts and 50 ft. on the opposite sides. The trees are set three and four feet apart in rows placed 8 ft. apart.

Most of the trees, which have been placed up to the present time, have been purchased from nurseries, although a nursery has been started by the company and trees are now being raised there. They are taken to the point of planting in refrigerator cars, as it has been found possible in this way to keep them dormant until as late as July.

While this work has not been carried on a sufficient length of time for the trees to become full grown and to demonstrate the entire success of the plan, the cost of plant-



A View of the Tree Protection

ing and caring for these trees compares very favorably with that of snow fences. The first cost is about 25 per cent of that for snow fences, while the maintenance expense will be very small after the first three or four years. This work has been handled under the supervision of T. A. Hoverstad, agricultural commissioner of the Soo Line.

**FREE PASSES TO ENGLISH RAILWAY DIRECTORS.**—The president of the British Board of Trade was recently asked whether, seeing that all the railways of the country were now under government control, he would give orders that the privilege hitherto enjoyed by the 500 or more railway directors of the United Kingdom of unrestricted traveling over all the railway systems first-class, without payment of fares, should now be withdrawn, and thus ease the prevailing congestion as regarded seating accommodation as well as adding to the railway revenue. To this, Sir Albert Stanley replied that he had no reason to suppose that the issue of free passes to railway directors results in any abuse of traveling facilities, and it did not seem to him that a departure from the existing practice would lead to the result which the member desired to attain.



## C. B. Seger

**C**HARLES BRUNSON SEGER has been elected temporary chairman of the executive committee of the Union Pacific, succeeding Judge Robert S. Lovett. Judge Lovett resigned from the Union Pacific to give his entire services to the United States government and it would appear, therefore, that, although Mr. Seger at present has the word temporary prefixed to his title, this actually will have little, if any, significance.

Superficially, at least, there is a contrast between Judge Lovett and his successor. Judge Lovett was diplomatic, kindly, sympathetic, but none the less keen. Mr. Seger is keen, uncompromising, downright, clear thinking to an unusual degree. In other words, the contrast between Judge Lovett and Mr. Seger is entirely as to methods.

It may be presumed that Mr. Seger has the confidence and backing of Kuhn, Loeb & Co. In the matter of choosing a head for the Union Pacific system, it is pretty safe to say that the bankers have had the ruling voice.

Mr. Seger has been vice-president and controller of the Union Pacific since the Union and Southern Pacific were separated in 1913. As an accounting officer he stands unquestionably at the very head of his profession. His grasp of detail and his memory for figures are remarkable. He is naturally intolerant of slipshod or petty theories. His organization of the accounting system of the companies which go to make up the Union Pacific has been the admiration of accounting officers and railroad executives both here and in England.

Mr. Seger's entire railroad career has been in the accounting department but, notwithstanding this, it is the opinion of operating officers who have worked with him that he could make a superlatively good general manager or, so far as that is concerned, fill any operating position; and, although he might not be capable of acting as superintendent of motive power or chief engineer of construction, he knows intimately what a good mechanical officer or engineering officer ought to accomplish under a given set of conditions. As vice-president and controller, in practice if not in theory, the presidents of the Union Pacific companies conferred with or reported to—as you have a mind to call it—Mr. Seger. Much of Mr. Seger's time and thought were given to operating statistics.

Probably there is no other accounting officer in the history of American railroads who has had as clear an insight into the limitations of the use of operating statistics as a guide to operating efficiency or who has worked more persistently and more successfully to so collate these statistics as to reflect actual conditions. Accounting officers are apt sometimes to make something of a sacred mystery of their profession. To Mr. Seger, a mystery, like an unweighted average, was an anathema. Mr. Seger was fearless in his opposition to theorists and to those who held views contrary to his own. He opposed vigorously and without subtleties the

Interstate Commerce Commissioner's desire to separate all operating expenses between freight and passenger. It could not be done accurately and, therefore, it was a falsehood to attempt to do so, was the substance of his argument.

It is very interesting to note an apparent tendency in Kuhn, Loeb & Co.'s policy toward the roads that they control. When they reorganized the Wabash, W. H. Williams, vice-president of the Delaware & Hudson and an accounting officer, was made chairman of the board. Now we have an accounting officer made chairman of the executive committee of the Union Pacific.

Charles Brunson Seger was born August 29, 1867, at New Orleans, La. He went to common school and began railroad work as an office boy on Morgan's Louisiana & Texas Railroad & Steamship Company, which is part of the Southern Pacific. He had become a clerk before 1887 and in that year was given the title of steamship auditor. In 1889 he was made traveling auditor and two years later was appointed chief clerk to the general auditor.

In November, 1893, Mr. Seger was made auditor and secretary of the Galveston, Harrisburg & San Antonio, the Texas & New Orleans, and the Direct Navigation Company. On January 18, 1900, he was made also auditor and secretary of the Galveston, Houston & Northern.

On November 1, 1904, Mr. Seger was appointed auditor of the Southern Pacific-Pacific system, with office at San Francisco, Cal. In January, 1910, he was made general auditor of the Union Pacific and Southern Pacific systems—the Harriman system; and in 1911 was made deputy comptroller of the Harriman lines. When the courts ordered the dissolution of the Harriman system and the separation of the Union and Southern Pacific, William Mahl, who had been controller of the Southern Pacific under Colis P. Huntington and later under E. H. Harriman, controller of the Harriman Lines, resigned and C. B. Seger became controller of the Union Pacific and

A. D. MacDonald of the Southern Pacific.

**AMERICAN ENGINEERS ROBBED IN CHINA.**—Press despatches from Peking dated March 8, report that two American engineers have been robbed and captured by bandits near Yeh-Sien, in the Province of Ho-Nan. A Chinese assistant also was taken prisoner. The party was on its way to inspect and survey the site of a proposed railway between Chow Kai-kow and Siang Yangfu. They were carrying a large sum of money with which to pay survey parties. An escort of 20 soldiers resisted the bandits until their ammunition was exhausted, when the party surrendered. Two of the Chinese escaped and reported the outrage. Officials of the American International Corporation which is associated with the Siems-Carey Railway & Canal Company in railway building in China, announced that they intended calling the attention of the State Department at Washington to the bandit outrage near Yeh-Sien, and would ask protection for their employees now in that section.



C. B. Seger

## Approximate Cost of Stopping a Train

By R. E. W.

**F**REQUENTLY THE QUESTION of cost incidental to stopping a train comes up in court actions and commission hearings, and heretofore the answer has been an estimate based upon general railroad experience and without any supporting data. If, however, such an estimate is not accurate enough for the purpose, some way of actually figuring the cost must be chosen and the following method will be found to give good results.

Since energy is the capacity for performing work, we may divide the energy dissipated in stopping a train from a given speed, by the work required to move the same train a mile at the speed from which the stop was made, and this quotient will represent the distance the train would have traveled due to its stored up energy. It is evident then, that this quotient, which may be called the equivalent miles run, multiplied by the cost of coal, repairs and wages per train-mile, will give the total cost of the stop. Train resistance figures which enter into the computation are based on a wide range of experiments and the respective costs mentioned above are taken from railway company statistics. These must be average values, because the cost of stopping a train even from the same speed, is not always the same due to varying brake action, slipping of drivers, etc.

To express the energy relations algebraically, let,

S = total energy in the train due to its speed.  
R = work required to move the train a mile at the given speed.  
F = distance the train could travel due to S.

Then from the preceding paragraph:

$$\text{Equivalent miles} = F = \frac{S}{R} \quad (1)$$

To find the value of S consider the general equation

$$E = \frac{1}{2} M V^2 \quad (2)$$

Where: E = energy in foot pounds.  
M = weight in pounds divided by G (acceleration due to gravity).  
V = velocity in feet per second.

Expressing the weight W, in tons and the velocity V, in miles per hour, equation (2) becomes

$$E = \frac{1}{2} \frac{W \times 2,000}{32.2} \times \left( \frac{V \times 5,280}{3,600} \right)^2 = 66.8 W V^2 \quad (3)$$

Adding about 5 per cent for energy of rotation, the total energy in the train becomes:

$$S = 70 W V^2 \quad (4)$$

$$R = 5,280 \times \frac{\text{total train resistance at the given speed in pounds}}{70 W V^2} \quad (5)$$

$$\text{Therefore: } F = \frac{S}{R} = \frac{70 W V^2}{5,280 \times \text{total train resistance}} \quad (6)$$

To apply this method to a particular case, consider an eight-car passenger train of the following description, running at 30 m.p.h.

Total weight of Pacific type engine.....	120 tons
Weight on driving wheels.....	75 tons
Weight of tender (¾ load).....	63 tons
Weight of eight coaches at 110,000 lb.....	440 tons
Total car resistance at 6.0 lb. per ton*.....	2,640 lb.
Tender and engine truck resistance at 6.0 lb. per ton*.....	648 lb.
Engine friction and head air resistance†.....	2,090 lb.
Cost of coal per car mile‡.....	2.63 cents
Cost of engine repairs per mile.....	9.49 cents
Cost of car repairs per mile per car.....	1.75 cents

Substituting in equation (6):

$$F = \frac{S}{R} = \frac{70 (120 + 63 + 440) \times 30^2}{5,280 \times (2,640 + 648 + 2,090)} = 1.38 \text{ miles.}$$

The cost of coal and repairs for the above distance is as follows:

Cost of coal = 1.38 × 2.63 × 8 =	29.0
Cost of engine repairs = 1.38 × 9.49 × 1 =	13.1
Cost of car repairs = 1.38 × 1.75 × 8 =	19.3

Cost chargeable to stop = 61.4 cents

This does not include the cost of time lost by the crew

which may be figured by applying 1.38 miles to the rate of pay per mile in case the crew gets overtime.

Also there are other items such as track repairs, lubrication, depreciation and taxes, a proportion of which is properly chargeable to these stops, but the amount is small and can properly be neglected.

For the sake of comparison, the above method is applied to a 50-car freight train of the following description running at 30 m.p.h.:

Total weight of Mikado type engine.....	130 tons
Weight on driving wheels.....	100 tons
Weight of tender (¾ load).....	63 tons
Weight of 50 loaded freight cars at 75 tons.....	3,750 tons
Total freight car resistance at 4.4 lb. per ton*.....	16,500 lb.
Tender and engine truck resistance at 4.4 lb. per ton*.....	409 lb.
Engine friction and head air resistance†.....	2,715 lb.
Cost of coal per freight car mile‡.....	.40 cents
Cost of freight car repairs per car mile.....	.87 cents
Cost of engine repairs per mile.....	9.49 cents

Substituting in equation (6):

$$F = \frac{S}{R} = \frac{70 \times (130 + 63 + 3,750) \times 30^2}{5,280 \times (16,500 + 409 + 2,715)} = 2.40 \text{ miles}$$

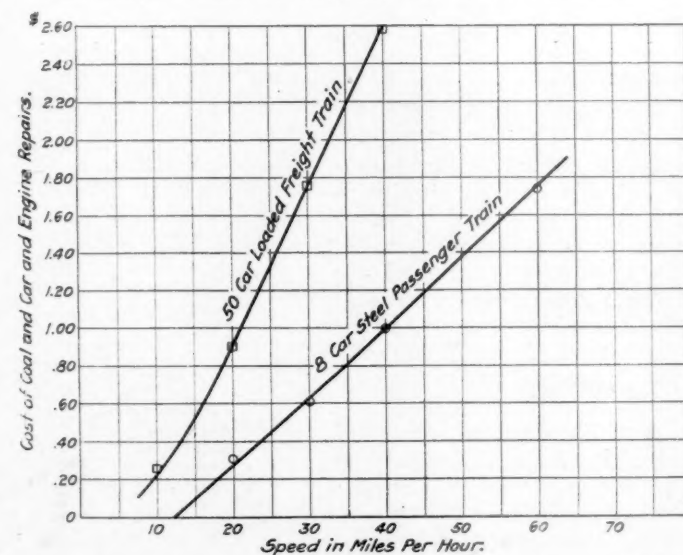
$$\text{Cost of coal} = 2.40 \times .40 \times 50 = 48.0 \text{ cents}$$

$$\text{Cost of car repairs} = 2.40 \times .87 \times 50 = 104.5 \text{ cents}$$

$$\text{Cost of engine repairs} = 2.40 \times 9.49 \times 1 = 22.8 \text{ cents}$$

Total cost of labor charges as stated before. = 175.3 cents exclusive

The relative costs of stopping the above passenger and



Approximate Cost of Stopping Freight and Passenger Trains from Different Speeds

freight trains from a speed of 30 m.p.h., is shown in the following table:

	Passenger	Freight
Total cost of coal.....	29.0 cents	48.0 cents
Cost of car repairs.....	19.3 cents	104.5 cents
Cost of engine repairs.....	13.1 cents	22.8 cents
Total .....	61.4 cents	175.3 cents

It will be observed that the cost of coal and especially the cost of freight car repairs, is what makes the charge so much higher in the case of the freight train. The same thing is shown graphically by the two curves illustrated, which were obtained by plotting speeds against costs, as obtained by the above method.

In case exceptions are taken to this method due to the fact that the costs of repairs are usually based on the actual mileage, which does not include the constructive or equivalent miles due to stops, it must be remembered that the relative mileage is small and the only effect would be to slightly reduce the cost of the stop.

\*All car resistances were taken from data obtained by Professor E. C. Schmidt for the University of Illinois. Engine truck and tender resistance is assumed to be equal to car resistance.

†Engine friction and head air resistance were taken from the Locomotive Handbook, published by the American Locomotive Company.

‡All other data are taken from railway company statistics.



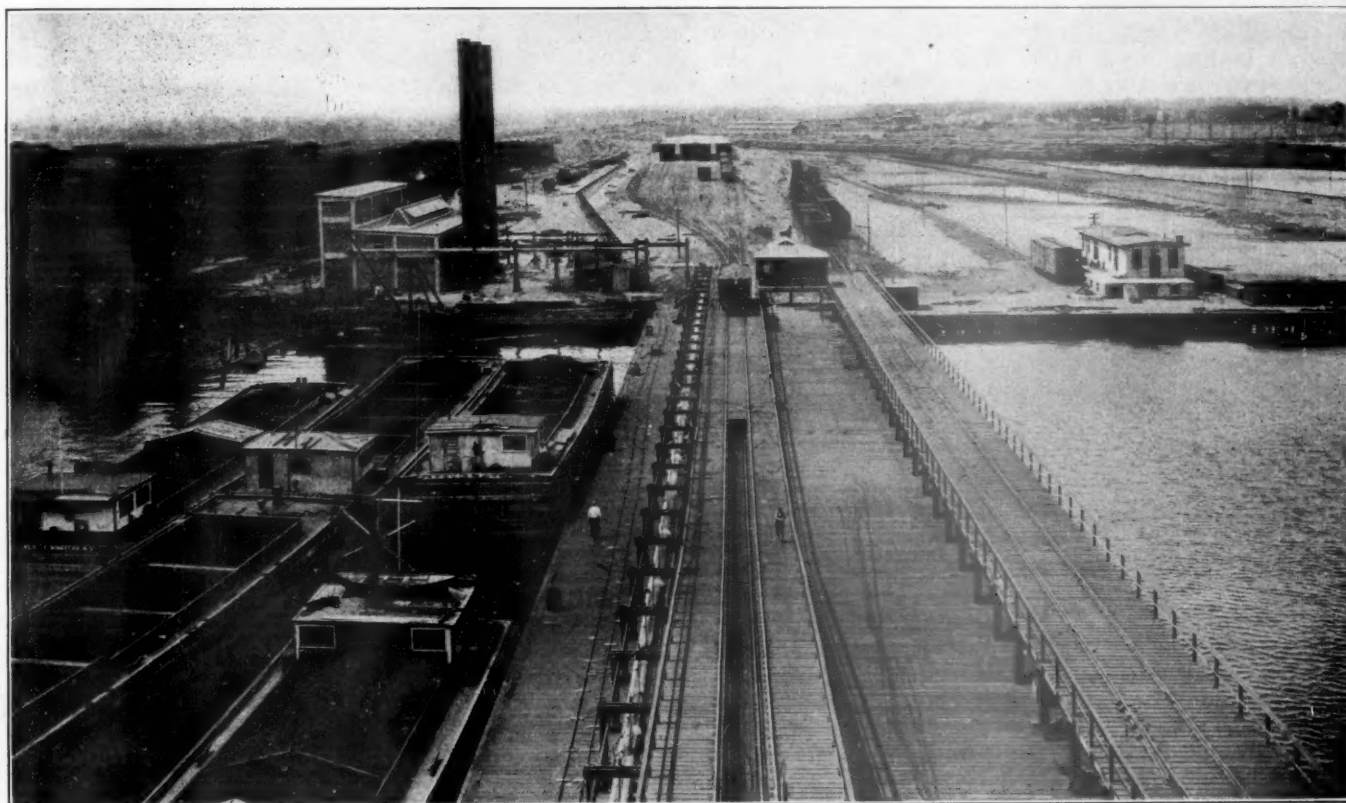
# New Reading Coal Pier Has Interesting Features

## The Installation of a Modern Car Unloading Machine Doubles Capacity of Port Reading Terminal

TO PROVIDE INCREASED FACILITIES for handling the rapidly increasing tidewater shipments of coal at its Port Reading (N. J.) coal terminal the Philadelphia & Reading has recently completed and placed in operation a modern car dumping plant to supplement the old facilities at this point. The new facilities include a pier, a car dumper, a thawing plant and additional yard tracks. While the project involved an outlay of approximately \$1,000,000, the expenditure is justified by the increased capacity of the plant and the reduction effected in operating expenses. By operating two shifts a day, the new car dumper has a capacity equal to that of the old plant. A force of

terminal for the handling of coal. The line is single track, with passing sidings holding 75 to 100 cars at intervals of about three miles to permit of flexible operation. The inbound or loaded coal trains average about 50 cars each and the outbound or empty trains 60 to 70 cars.

Prior to the completion of these improvements, the coal handling facilities at this terminal consisted of three high-type gravity trestles with a combined capacity for handling approximately 7,000,000 tons of coal per annum and a coal storage yard having a capacity for 2,800 cars. The trestles handle both bituminous and anthracite coal in the approximate proportions of 60 per cent bituminous and 40



General View of the Terminal

175 men is employed to handle the maximum capacity of 600,000 tons a month over the three trestles comprising the old plant, as compared with 12 operators required to handle the same amount of coal over the car dumper.

### The Port Reading Coal Terminal

The Port Reading coal terminal, which provides the facilities for the trans-shipment to vessels of coal transported over the lines of the Philadelphia & Reading and its connection, was first placed in operation in 1892. It is located about 17 miles below New York City on the Arthur Kill, which separates Staten Island from the New Jersey mainland and at the terminal of the Port Reading Railroad, a subsidiary of the Reading system.

This railroad is 19 miles long and extends from Manville, on the New York division of the Reading, to the terminal. It is operated for freight only, its principal function being to provide the connection from the Reading main line to the

per cent anthracite. The bituminous coal comes from Ohio, Pennsylvania and West Virginia and the anthracite mainly from Pennsylvania.

While by far the greater amount of the coal handled in Port Reading is destined for New York and vicinity, a considerable amount is also handled for export, coastwise and bunker purposes. Twelve locomotives are employed in the regular shifting force, working 24 hours per day. The engine crews and car riders work in eight-hour shifts. A fleet of four tugs is maintained to handle the vessels for New York City, a flotilla consisting of from 25 to 30 boats. The loading is done as far as possible during the day, and the loaded boats are moved out on the low tide at night. The empties at New York are picked up during the day, assembled at a stake boat in the lower harbor and are returned to the terminal at night for the next morning's performance.

The new facilities consist of a timber pier 900 ft. long

by 78 ft. wide and an electrically-operated car dumping machine, a sub-station for generating the power used to operate the dumper, a boiler house built of concrete and brick, a thawing house of fire-proof construction with a capacity for 44 cars and additional yard facilities. The new track facilities provide storage for 1,200 cars, making a total storage capacity in the entire plant of 4,000 cars. The car dumper is capable of handling one car of 100-ton capacity per minute and it is expected that an average of 30 cars per hour over the dumper will be maintained. Working day and night shifts at this hourly capacity the car dumper will handle an amount of coal equal to that handled over the three gravity trestles. The dumper will be utilized chiefly for unloading bituminous coal and the smaller sizes of anthracite. As the trestles will be maintained in service to supplement the dumper, this installation doubles the coal-handling capacity of the terminal.

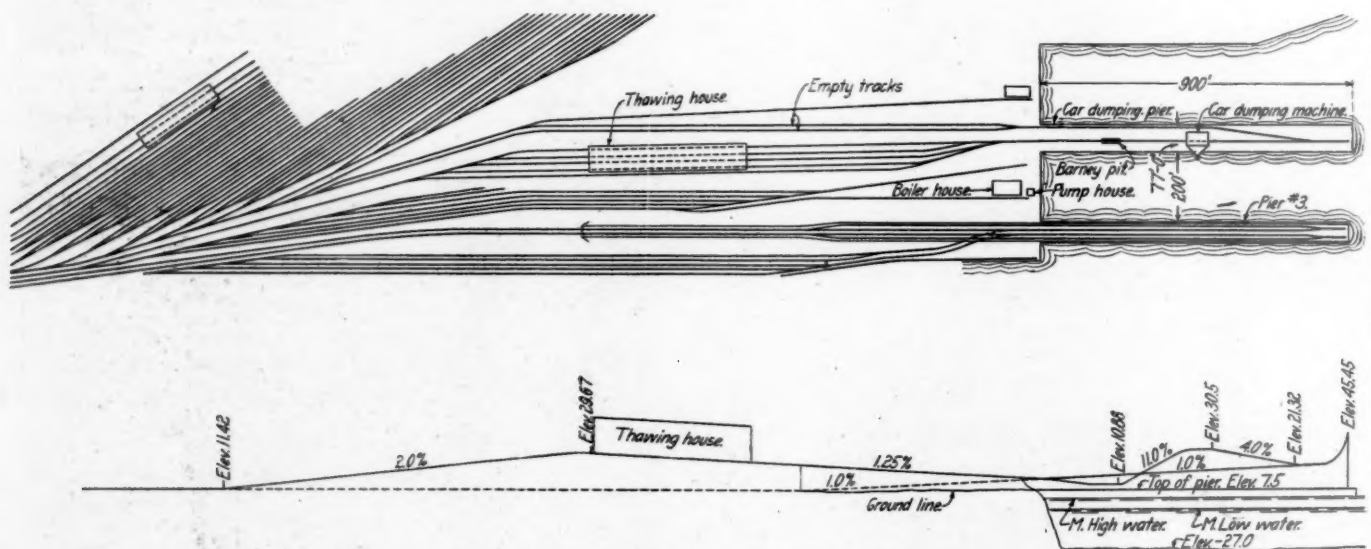
The site upon which the new facilities are now located was originally a salt marsh which was under water at high tide. This marsh was filled in with sand pumped from the sound by an hydraulic dredge to an elevation of 10 ft. above mean low water. The dredge also made the fill upon which the thawing house is located and for the empty and loaded car tracks serving the machine. The fill at the thaw-

with the bottoms of the cars. The air heating apparatus is located in the center of the house on the second floor and consists of steam engines, fans, steam coils, and recording thermometers by which the temperature in any of the four stalls is ascertained and recorded. Steam is supplied to the thawing house through asbestos covered pipes leading from the boiler house, and the condensation from the steam coils is returned to the boilers both because of the saving in heat and the difficulty of securing good boiler water in this locality.

The efficiency of the plant is increased by using the same air over and over instead of securing a new supply from the outside atmosphere. This is done by drawing the air from the top of the stalls through the steam coils and forcing it through ducts which have outlets between the rails, thus bringing the hot air in contact with the bottoms of the cars. The severe weather during the winter at Port Reading makes it necessary to use the thawing plant about three months in the year.

#### Other Facilities

The pier is a timber structure 75 ft. wide and 900 ft. long. The central portion is of low water construction and comprises the foundation for the unloading machine. This



Plan of the Track Layout and Coal Pier

ing house has an elevation of about 30 ft. above mean low water at its summit, and in making these fills 588,764 cu. yd. of material were moved. This part of the work was done in 60 days, the dredge maintaining an average of 9,800 cu. yd. of material moved per day.

#### The Thawing Plant Is an Important Feature

The thawing house, which is one of the most interesting and important units of the layout, is located between the storage yard and the dumper. It is 440 ft. long and 70 ft. wide and has four stalls, each capable of holding 11 cars. It is of fire-proof construction, with a frame work of light steel channels to which triangular wire mesh was welded electrically on each side and covered with gunite, forming two solid walls about 1½ in. thick with an air space between them. This type of construction is particularly adapted to this kind of a structure inasmuch as the air space between the walls reduces the radiation of heat to a great extent. The house rests on a concrete foundation which in turn is supported on timber piles driven into the sand fill.

The thawing of coal is done by forcing air, heated to a temperature of 250 deg. F., into any one or all of the four stalls or tunnels of the house and bringing it into contact

foundation contains 880 timber piles which are cut off at low water, clamped, capped and covered with an 8-in. deck. This deck supports the concrete machine foundation as well as the concrete face wall of this portion of the pier which encloses the entire machine foundation. The space between the various units of the concrete foundation is earth filled. The remainder of the pier is of high water construction, the piles being cut off 10 ft. above mean low water, clamped, capped and covered with a 3-in. deck. All of the piles and timber used in the construction of the pier are creosoted except the top clamps, caps and 3 in. decking in the high water construction.

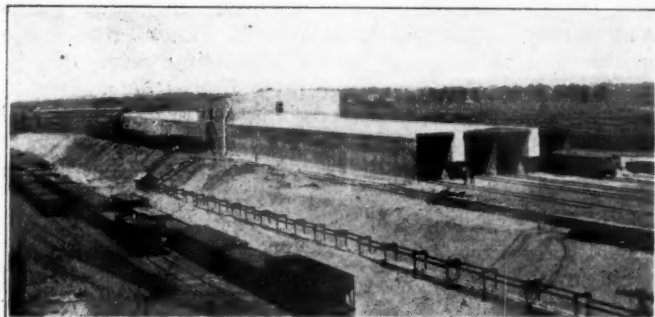
The boiler house which supplies steam to the thawing house and the sub-station for the operation of the car dumping machine, is located midway between the thawing house and the dumping machine. The house is built of brick and concrete with its boilers arranged in three batteries of two boilers each, having a total capacity of 1,200 h.p. The boiler house is equipped with elevating and conveying machinery which delivers the fuel into a suspended bunker from which it is fed to the boilers by gravity.

The sub-station is located under the dumper and is fitted with 250 h.p. direct connected electric generators which are



used on alternate days. The generators supply the power for the entire operation of the dumper with the exception of the haulage car, which is steam operated. The exhaust steam from the sub-station is utilized in preheating the boiler water to about 210 deg. F. before it reaches the boilers.

Another important feature of the plant is the electric boat hauling machine which moves the loaded boats away from the unloader, the empties into place and warps the boats being loaded up and down the pier for trimming so as to bring the proper hatch under the chute. This machine



The Thawing House

consists of a drum located under the car dumper and sheaves anchored to the pier in both directions from the drum over which cables are operated.

#### The Operation of the Car Dumper

As may be seen in the map, the layout is simple and convenient of operation. The approach to the thawing house is on a 2 per cent compensated grade which permits the locomotives in use at the terminals to push eleven 100-ton capacity cars into the thawing house, or all that one stall of the house will accommodate. The tracks through the house and down to the car haulers pit were built on a 1.25



The Unloader in Operation

per cent descending grade. Sufficient room is provided in front of the thawing house to store 11 cars on each of the four tracks through the house. When the house is filled with cars and the first stall thawed these cars are run out of the house by gravity and 11 more cars are put in. In severe weather about two to four hours is required to properly thaw a car.

A fifth track provided south of the house permits the operation of the dumper without the necessity of the cars passing through the house. Like the other four tracks, this track is on a 1.25 per cent descending grade in the direc-

tion of the dumper. The thawed cars and those brought in by way of the No. 5 track run down, one by one, from the storage tracks in front of the thawing house to the haulage pit, from which point they are taken up the heavy track trestle over an 11 per cent grade to the cradle of the dumper by a steam-operated car haulage machine. At the machine the car is clamped in place, elevated and turned over, dumping the coal into a pan conveyor. From the pan the coal runs through a telescopic chute into the hold of the boat, and by always keeping the chute full, the breakage is reduced to a minimum. The on-coming loaded car pushes the empty car from the cradle. It then runs down a 4 per cent grade to a switch-back at the end of the pier and returns on the light track trestle down a 1 per cent grade to the light car storage yard.

The plant was designed and built under the direction of Samuel T. Wagner, chief engineer of the Philadelphia & Reading, and F. Jasperson, engineer in charge of construction. The construction work on the pier, foundations and boiler house was done by railroad forces under the supervision of Mr. Jasperson. The thawing house was built un-



The Unloader and the Loaded and Empty Cars

der contract with the Surety Engineering Company of New York, and the McMyler Interstate Company furnished and erected the dumping machine. The operation of the plant is under the direction of William Brown, shipping and freight agent at Port Reading, and its maintenance is in charge of I. A. Seiders, superintendent of the motive power and rolling equipment department of the Reading.

**DOCK CONSTRUCTION IN FRANCE.**—Several thousand men are employed in construction work at the various American depots in France says a Paris correspondent in the New York Times. A total of 125 miles of tracks has been laid to the depots, and \$15,000,000 has been expended. The docks under construction at one port will cost millions of dollars.

**AMERICAN ENGINEERS BUILD WAREHOUSES IN FRANCE.**—Remarkable progress has been made, by the American engineers in constructing tracks and building warehouses and ordnance depots, despite the difficulties of transporting all the materials from America. A cable despatch to the New York Times dated March 12, says that the advance regulating station has 19 warehouses completed, with a capacity of 5,000 tons each, to supply an army of 1,000,000 men. The number of warehouses will be increased to 39 by July. All this work, including the construction of the ordnance depot, 50 miles of railroad tracks, and barracks for several thousand men, has been completed since October.

## Rate Advances Allowed on Eastern Railroads

THE INTERSTATE COMMERCE COMMISSION in a series of orders handed down on March 15 allowed most of the increases in rates asked by the railroads in Official Classification territory at the hearings held before the commission during November in the supplemental 15 per cent case and the other cases considered in connection therewith, which in general cover the commodity rates which were not increased by the commission's decision of June 27, 1917. That decision allowed increases in class rates and on a few specific commodities, estimated to amount to approximately \$97,000,000 a year, and the latest decision allows, with some exceptions, the remaining increases originally asked which it was estimated by the railroads at the time of the hearing would add approximately \$58,000,000 more.

No opinion accompanies the latest decision, which is merely a series of orders vacating the suspension of the proposed tariffs with a statement of the exceptions and a set of rules governing the relationship and adjustment of the rates involved in the 15 per cent case.

In general the advances allowed are on a 15 per cent basis, but the increase on anthracite coal is a maximum of 15 cents a ton, the increase on cement is 1 cent per 100 lb., and on lumber and forest products 1 cent per 100 lb.

As to anthracite coal, the commission vacated and set aside its order of July 30, 1915, docket No. 4914, in the matter of rates, practices, rules and regulations governing the transportation of anthracite coal and the modifying orders entered on September 1, November 22 and December 30, 1915, and February 24, March 9 and March 23, 1916, thereby allowing the advances to go into effect. In Investigation and Suspension docket No. 111, in which proposed increases were suspended until April 29, 1918, the commission vacated as of March 25, 1917, its order suspending the operation of schedules in tariffs of the Norfolk & Western, and ordered that the commodity rates on anthracite coal, in so far as increased by 15 cents per long ton or less, as stated in the schedules, be approved, provided that such rates between points in Official Classification territory shall not be increased by more than 15 cents per long ton, and that where a through rate between two such points is made by combination appropriate provision is made in the schedules that the aggregate increase of the factors applicable in such a combination shall not exceed 15 cents per long ton. The proposed schedules will be held under suspension until cancelled by new schedules filed in conformity with these conclusions. The orders in the anthracite investigation, 35 I. C. C. 220, will be vacated and set aside.

In the eastern livestock-fresh meat case, I. & S. docket No. 1124, in which the proposed increases were suspended until July 13, 1918, the orders are vacated as of March 25 and the proceeding discontinued.

In the eastern commodity case, I. & S. docket No. 1125, in which proposed increases were suspended until June 30, 1918, the carriers are required to cancel the schedules on or before April 25, 1918, in so far as they proposed increased rates on condensed milk and canned vegetables from Wisconsin and Illinois points, and increased rates on lumber, mine props and mine timbers in carloads, and furnace castings in less than carloads, and an increase in the minimum carload weight on woodenware from Escanaba, Mich., to eastern points. With this exception, the orders are vacated as of March 25 and the proceedings discontinued.

In the case involving commodities between trunk line and western points, I. & S. docket No. 1131, in which the increases were suspended until July 13, the orders are vacated as of March 25 and the proceeding discontinued.

In the Central Freight Association territory petroleum

case, I. & S. docket No. 1134, in which the increases were suspended until July 18, the orders are vacated as of March 25 and the proceeding discontinued.

In the eastern grain case, I. & S. docket No. 1142, in which increases were suspended until July 29, 1918, the orders are set aside as of March 25 and the proceeding discontinued.

The supplementary 15 per cent case, No. 57 ex parte, involves increases in commodity rates within Official Classification territory, and increases in class and commodity rates between Official Classification territory and other territories. The commission ordered that commodity rates on brick clay and articles grouped therewith in present tariffs from Canton, O., to points in Central Freight Association territory and Illinois, and on the Mississippi river, may be increased by 15 per cent and rates from other points in western Pennsylvania, West Virginia, central, southern and eastern Ohio and the Ashland, Ky., group, may be made on the established differentials over or under the Canton rates so increased.

It is further ordered:

That commodity rates on cement may be increased by 1 cent per 100 lb.

That commodity rates on lumber and forest products may be increased by 1 cent per 100 lb.

That commodity rates, other than on ice, bituminous coal, coke, and iron ore, which are not otherwise covered by this order or by the foregoing orders, and which have not been increased since June 27, 1917, may be increased by 15 per cent, observing established rate groupings, relationships, and differentials in manner provided in paragraphs designated I to XIII of this order.

That joint rates, whether class or commodity, between Official Classification territory on the one hand, and southeastern territory, the southwest, and points on or east of the Missouri river on the other, may be increased by amounts not exceeding the increases in rates now and heretofore allowed to the carriers in Official Classification territory under this proceeding and the C. F. A. Class Scale Case, 45 I. C. C., 254. If these increases involve a change in the relationship under the long-and-short-haul rule between intermediate points and more distant points outside of official classification territory relief from the fourth section of the act must first be secured on regular application.

That in establishing rates increased by 15 per cent, the existing groupings and relationships as hereinafter specified may be preserved, even though by so doing some rates are increased slightly more than 15 per cent.

That in establishing the increases, rates from Chicago to New York and Montreal, and from New York to Chicago, may be increased 15 per cent, and such increased rates may be scaled to or from percentage points or groups upon the established percentage groupings and percentages; that rates via the established all-rail differential lines may be made the same differentials under the standard all-rail rates as now exist; and that the established groupings of points of origin or of points of destination under common rates may be preserved; even though so doing results in increasing some rates slightly more than 15 per cent.

The commission also prescribed in detail the percentage relationship of rates and the differential and arbitrary adjustment of rates, authorized but not specifically designated above, in cents per hundred pounds. Specific commodity rates which were on June 27, 1917, the same as the class rates, or established percentages of class rates, from and to the same points, may be increased the same amounts or percentages as such class rates have been increased. Rates per ton may be increased on the basis per hundred pounds, using 2,000 lb. as the ton.

Rates authorized in the foregoing orders may be established upon notice to the commission and to the general pub-



lic by not less than five days' filing and posting of tariffs and schedules under suspension in the foregoing proceedings may be supplemented or cancelled on one day's notice, but where rates are held by any unexpired order of the commission other than those in the anthracite investigation, there must be appropriate application in each case for modification of the order.

In the case involving commodity rates in Official Classification territory, Fifteenth section order No. 176, a large number of applications for approval for filing of certain increased rates are denied without prejudice to applicants' right to renew any of them as to which the authority sought is not granted in whole or in part or denied in the above orders.

## Handling Locomotives at Railway Terminals\*

An Increase in Locomotive Miles Can Be Accomplished  
By Better Enginehouse Facilities

By Frank C. Pickard

Master Mechanic, Delaware, Lackawanna & Western, Buffalo, N. Y.

WE ARE ENGAGED in the business of transporting necessities from where they are produced to where they are needed and the connecting link between these two places is the railroad, its motive power, vehicles of conveyance, tracks, etc. This country needs locomotives as it does ammunition and big guns. The locomotive must be kept as nearly 100 per cent efficient as possible and must be detained at the terminals as little as necessary. The fol-

tween the different classes of power. The chart shown in Fig. 2 is for an organization where such division is desired.

It is desirable to have an inspection pit, so located that the locomotive may be placed on it immediately after it has been washed. This pit should be long enough to take the entire locomotive and tender and it should be equipped with sufficient lighting facilities to enable the inspector properly to do his work.

A first-class turntable of ample length and sufficiently strong so that it will not spring under the heaviest loads is very necessary for handling locomotives at a large enginehouse. One essential matter that is many times overlooked is the alignment of the tracks across the table. It is highly desirable to have the turntable line up with the fixed tracks on both ends.

An enginehouse is not complete unless it is equipped with a tool room that contains suitable and enough tools properly

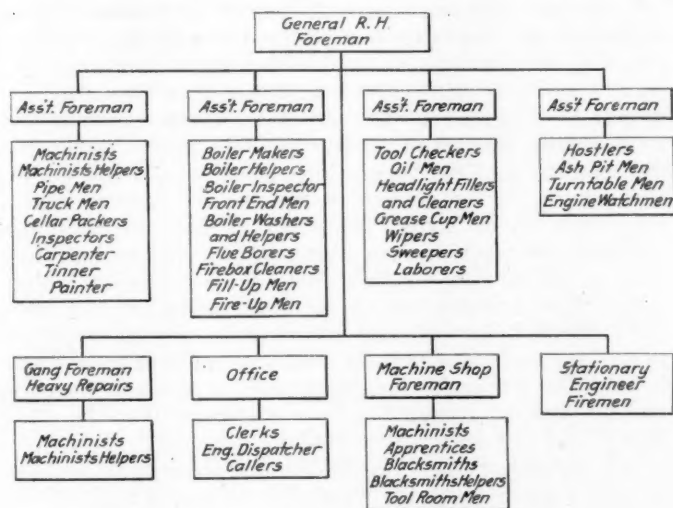


Fig. 1

lowing are a few suggestions that will help to accomplish these results.

A water-type ashpit served by a gantry crane should be provided at the terminals. With such equipment one man can handle the cinders from 125 locomotives in 24 hours. The labor for cleaning fires can be handled to the best advantage on a piece work basis.

After the fire of a locomotive has been cleaned or dumped, the machinery of the locomotive and the running gear of the tender should be carefully cleaned so that it may be inspected properly. The larger types of locomotives can be thoroughly cleaned in from seven to ten minutes by washing them with a combination of fuel oil and water sprayed through a nozzle by compressed air.

Each enginehouse must have a well defined organization. The chart shown in Fig. 1 gives the plan of an organization for a terminal handling approximately 100 locomotives every 24 hours, where it is not desired to specialize be-

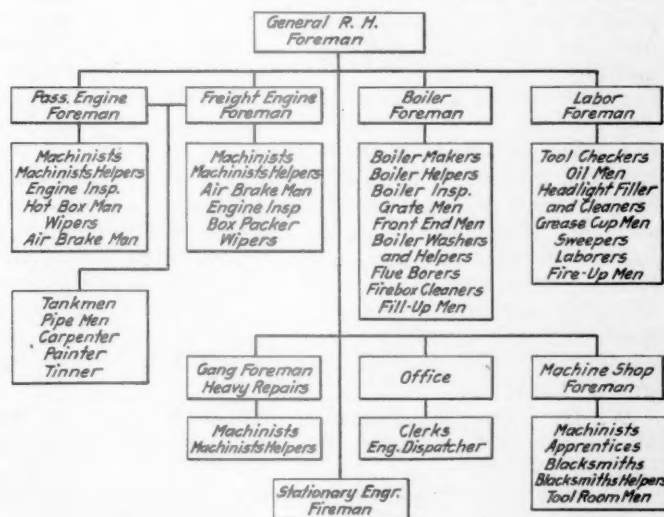


Fig. 2

and promptly to handle the work. Each enginehouse of any considerable size should be equipped with portable tools, such as boring bars, valve facing machines, crank pins, truing machines, portable tool boxes, portable benches, small trucks, wagons, etc.

Water cranes should be located on the tracks leading to and from the enginehouse. With these properly located, no time will be lost in moving locomotives back and forth to give them water. Every enginehouse should have a sufficient steam pressure to provide a blower system of adequate

\*Abstract of a paper presented before the Central Railway Club.

capacity. A hot water washout plant of sufficient capacity to take care of all locomotives to be washed is important. By its use a large amount of boiler maintenance is eliminated, for when cold water is used the expansion and contraction of the boiler due to the quick change of temperature will cause trouble. The hot water system also saves fuel and time in preparing the locomotive for service. Electric and autogenous welding outfits are essential in every enginehouse, as by their use much time in repairing the engine can be saved.

Each enginehouse should have suitable pits for removing engine truck wheels, tender wheels and drivers. Every locomotive terminal should be provided with adequate means for handling the locomotive fuel. The coal dock should be located so that it will cover locomotives as they approach the enginehouse. A suitable record should be kept to show the terminal detention of locomotives which is chargeable to both the mechanical and transportation departments separately.

Check up the enginehouses at night and in the morning and finish the day's work with as few locomotives held as possible. Everything should be done to keep them in service. It may be that a tender from one locomotive can be transferred to another and thus a locomotive gained, or if two engines of the same class are held, many times one may be released by replacing defective material of one with its duplicate on the other. Everything must be done to produce more locomotive-miles.

#### Discussion

As a stimulus to the discussion of the subject, the author added to the paper a list of twelve questions. The majority of those who spoke favored cleaning locomotive fires on a piece work basis rather than on a day wage. Some roads pay 35 cents per engine for this work. The Lackawanna pays 35 cents for locomotives having 65 sq. ft. of grate surface and under, and 45 cents for locomotives having more than 65 sq. ft. of grate area. The washing of engines, as described by the author in his paper, was considered good practice and it was deemed inadvisable to use this system when the temperature got below 10 above zero, as it was difficult to keep the water from freezing on the locomotive. For this work the Lackawanna pays 39 cents per locomotive. The majority of the members favored the use of inspection pits. Mr. McIlvaine, superintendent motive power of the Northern division of the Pennsylvania, stating that the use of inspection pits was practically universal on the Pennsylvania. The majority of the members found that more supervision was necessary under present labor conditions. None of those who spoke found it necessary to use women in enginehouse work except as clerks. Most of the members stated that the locomotives were coaled on going into the roundhouse. The plan of organization shown in Fig. 1 was preferred.

W. H. Flynn, superintendent of motive power of the Michigan Central, discussed the paper at length saying, in part, as follows:

Mr. Pickard's mention of the necessity of a well equipped tool room is a pertinent point, but I would go further and recommend that every large roundhouse, and possibly some of the smaller ones, be provided with a small but well equipped machine shop, even though the general repair or "back shop" were not very far away. Motor driven tramp or portable lathes will also be found to be of great value, and as the current can be obtained from an ordinary lighting circuit, the use of such machines is very flexible.

The fundamental principles of a good engine terminal are plenty of room inside as well as out; necessary equipment inside for doing work; good heat and ventilation; plenty of light, both day and night; a good turntable; good coal, water and clinkering facilities, and last but not least, a good organization with system. The best designed and

equipped terminal will not produce results if the organization is weak or the system poor. I am convinced that by careful selection and thorough training, good roundhouse foremen with future possibilities can be developed.

Turning engines promptly is most necessary, but in so doing the maintenance must not be overlooked. It is in doing the necessary work that system is so essential, for without a well defined plan of taking care of boiler work, wedges, rods, packing, tires and wheels, turning engines out rapidly goes for naught, if they fail between terminals. I am a firm believer in doing the necessary work at the proper time, even if it retards the despatching of the engine, which it sometimes will, but engines cared for properly will pull cars, which is what the country needs so urgently today. There have been times when we could figure on slack periods to catch up with work, but such a policy would be disastrous in the present crisis.

Well laid out, well equipped, properly managed engine terminals are mighty big factors in the successful operation of every railroad. It is a live and vital subject today.

A resolution of co-operation to Director General McAdoo was adopted by the club members.

### Hearing on Kansas City Southern Valuation

**T**ESTIMONY REGARDING the "other values and elements of value" in the Kansas City Southern system, which, according to the tentative report of the Bureau of Valuation of the Interstate Commerce Commission, were not found to exist, was presented at a hearing before the Interstate Commerce Commission at Washington beginning on March 14. Samuel Untermyer, representing the road, and C. A. Prouty, director of the Bureau of Valuation, stated that the company and the bureau have practically completed the testimony as to the physical valuation and have reached a stipulation on an agreed statement of facts to be signed probably this week; but the director stated that no basis had been found for the determination of the intangible values in such a way that they could be stated in dollars and cents. He contended that it could not be done without reference to the purpose for which the valuation was made and that it would be proper for the commission to report to Congress on the physical property with a statement that the other values had not been determined.

Mr. Untermyer urged that the earning capacity of the road depended more upon the intangible elements than on the physical property and while he was prepared to introduce testimony he filed a motion that it be deferred until after the commission has completed the physical valuation of the other five roads in the territory. After considerable argument, during which Director Prouty and P. J. Farrell, chief counsel for the commission, stated that the finding of the bureau was not meant as a declaration that there were no intangible values, but as a statement that they were not found, the commission took the motion under advisement and directed that the testimony be introduced.

Mark Wymond, a civil engineer of Chicago, who has had a broad experience and is the author of a book on valuation and rates, was introduced as the first witness and amid considerable wrangling as to whether or not he was going to make an argument and as to the relevance of his testimony he read a statement explaining his opinion, after an investigation of the property, that its total value was \$76,500,000. In reaching this conclusion he had assumed the value of the physical property, on the basis of the stipulation, as \$50,000,000.

L. F. Loree, chairman of the Kansas City Southern, explained in detail the reasons for his judgment that the road was worth \$80,000,000. He based this largely on the earn-



ing capacity and declared that the intangible value was the difference between the total value and the value of the physical property, without attaching a definite figure to any of the elements which he said he had used as an aid to his judgment. He said he had not taken into consideration the average market value of the securities, because, while such an average for a long swing might be valuable, market values of securities during the last 10 years have not reflected the earning capacity of the roads, but have been influenced by a general distrust and apprehension. Mr. Loree was cross-examined by J. E. Benton, solicitor for the Bureau of Valuation, whose purpose apparently was to show that while the existence of intangible values could be shown it would be impossible to establish a definite figure for each item or to apportion the values to the states. Mr. Loree admitted that some arbitrary basis would have to be used.

Mr. Loree stated incidentally that a number of locomotives that stood on the company's books at \$12,000 each and which had been valued by the bureau at \$6,000, had been sold for \$30,000 and the proceeds used to buy new Mallets. Also tank cars of a book value of \$1,100 valued at \$500 had been sold for \$2,200.

W. S. Kinnear, consulting engineer, testified that his investigations, based largely on the earning capacity of the road, the increment in the increase in net income and the margin of safety as compared with other roads in the territory, showed that the total valuation of the property was \$77,000,000, and that the difference between this total value and the value of the physical property represented the intangible values. He did not attach specific values to the various items and admitted that the total intangible valuation could not be apportioned among the states except on an arbitrary basis. He suggested, however, that this could fairly be done on the basis of the apportionment of the physical property, but under cross-examination admitted that this would not accurately reflect the elements of intangible value in each state.

## Train Accidents in January<sup>1</sup>

THE FOLLOWING is a list of the most notable train accidents that occurred on the railways of the United States in the month of January, 1918:

Collisions						
Date	Road	Place	Kind of Accident	Kind of Train	Kill'd	Inj'd
5.	Phila. & Reading	Skillman	rc	P. & P.	0	0
†10.	M. K. & Texas	Granger	rc	P. & P.	3	11
20.	Erie	Lackawaxen	rc	P. & P.	0	3
20.	Penn.	Iroquois	xc	P. & P.	0	5
21.	Ches. & Ohio	Russell, Ky.	bc	P. & F.	3	3
*23.	M. K. & Texas	San Antonio	xc	P. & F.	1	4
23.	Atlantic C. L.	Tarboro	xc	P. & F.	1	2
24.	Del., L. & W.	Nay Aug, Pa.	rc	F. & F.	0	2
†26.	Chicago B. & Q.	Wyola, Mont.	xc	P. & F.	4	4
30.	Norfolk & W.	Radford	bc	P. & F.	4	2
†31.	N. P. and G. N.	Sedro Woolley	xc	P. & F.	5	18
Derailments						
Date	Road	Place	Cause of Derailment	Kind of Train	Kill'd	Inj'd
9.	Norfolk & W.	Cleveland	unx	F.	1	2
†14.	Houston & T. C.	Hammond, Tex.	acc. obst.	P.	17	12
14.	Maine C.	Bemis	runaway	F.	1	2
†15.	Union Pac.	Beloit, Kan.	b. rail	P.	3	26
18.	Norfolk & W.	Groseclose	ms	P.	0	0
*19.	Penn.	Amo, Ind.	d. eq.	F.	0	0
21.	Louisville & N.	Newcastle	d. switch	P.	0	3
22.	Rutland	Middlebury	boiler	P.	2	0
23.	C. C. C. & St. L.	Marion	d. track	P.	0	29
23.	Penn.	Philadelphia	d. journal	P.	1	12
23.	N. C. & St. Louis	McCarty	exc. spd.	P.	0	0
24.	Louisville & N.	Conway, Ky.	d. track	P.	0	3
29.	New York Central	Middleville	.....	P.	0	9
†29.	Illinois Central	Granger, Ill.	.....	P.	3	14
30.	Pennsylvania	Bradenville	.....	F.	2	5

<sup>1</sup> Abbreviations and marks used in Accident List:  
rc, Rear collision—bc, Butting collision—xc, Other collisions—b, Broken—d, Defective—unf, Unforeseen obstruction—unx, Unexplained—derail, Open derailing switch—ms, Misplaced switch—acc. obst., Accidental obstruction—malice, Malicious obstruction of track, etc.—boiler, Explosion of locomotive on road—fire, Cars burned while running—P, or Pass., Passenger train—F, or Ft., Freight train (including empty engines, work trains, etc.)—Asterisk, Wreck wholly or partly destroyed by fire—Dagger, One or more passengers killed.

The trains in collision at Skillman, N. J., on the 5th were eastbound passenger, a local standing at the station being run into at the rear by a following express. The rear car of the local train was wrecked, but it was empty and all of the personal injuries reported on either train were classed as slight. The cause of the collision is given by an officer of the road as the failure of a Hall automatic block signal, which permitted the train to proceed when it ought to have indicated stop, and the coincident failure of the flagman of the leading train to go back a proper distance.

The trains in collision at Granger, Tex., on the 10th, about 2 a. m., were the first and second sections of the Katy flier. One sleeping car in the leading train was telescoped for two thirds its length; and three passengers were killed and 11 injured. The first section was standing at a coal chute and the collision was due to the high speed of the second section, which approached not under control. The rule covering situations of this kind, in effect for a number of years, was reissued in a circular by the chief operating officer about two months ago (November 19) saying: "When more than one section of a passenger train, all but the first section must approach and pass all water tanks and coal chutes, and all stations that are regular or flag stops for such trains, completely under control, so that under no circumstances whatever shall it be possible for it to strike the preceding section."

The trains in collision near Lackawaxen, Pa., on the 20th were eastbound passenger. The dining car at the rear of the leading train was wrecked and two passengers and one employee were injured. The collision was due to disregard of a block signal.

The trains involved in the collision at Iroquois, Pa., on the 20th were westbound first class train No. 59; a light engine and an eastbound passenger (No. 6). No. 59 ran into the light engine and forced it between the block station and the eastbound train which was making a reverse movement. The trains were moving at moderate speed. Four trainmen and one mail clerk were injured. The cause of the collision was the disregard of a signal by train No. 59.

The trains in collision at Russell, Ky., on the night of the 21st were eastbound passenger No. 4, and a switching engine in the yard. One engineman, one fireman and one other employee were killed and three other trainmen were injured.

The trains in collision on the Missouri, Kansas & Texas near San Antonio, Tex., on the 23rd were a southbound passenger, nine hours behind time, and a train consisting of a switching engine and a steam shovel, moving from a side track to the main line. The passenger engine and the steam shovel were damaged and the combustible portions of the shovel took fire; the flames, however, being extinguished by the city firemen. One employee was killed and two passengers and two enginemen were injured. The switching train was on the main track without right and without flag protection.

The trains in collision at Tarboro, N. C., on the 23rd were a southbound passenger, and a locomotive standing on a side track. The train ran over a misplaced switch and collided with the standing engine. The engineman of the passenger train was killed and two other trainmen were slightly injured.

The trains in collision at Nay Aug, Pa., on the 24th were eastbound freights. The leading train, with a pushing engine at the rear, was at a standstill and was run into by a following freight, wrecking the caboose and five cars and badly damaging two locomotives. Two trainmen were injured.

The trains in collision near Wyola, Montana, on the 26th were an eastbound passenger and the rear end of preceding freight. The head end had been cut off to double and the rear cars, which were not properly secured by sufficient brakes, ran down the hill and into the head of the

passenger train. The engine and first three cars of the passenger train were derailed, also six cars of the freight train, the freight cars catching fire and being partly destroyed. Four passengers were killed and four slightly injured.

The trains in collision near Radford, Va., on the night of the 30th were an eastbound passenger and a westbound freight. Two enginemen, one fireman, and one brakeman were killed and three other trainmen were injured. Responsibility for the collision is charged against an operator, for failure in manual block-signal working, and to neglect on the part of the conductor of the freight, who overlooked the passenger train.

The trains in collision at Sedro Woolley, Wash., on the night of the 31st were a southbound freight of the Northern Pacific and an eastbound passenger of the Great Northern. The freight ran into the passenger train at the crossing of the two roads. The freight engine struck the rear car of the passenger train, and pushed it about 100 ft. to the station building. The car broke through the station office and was itself completely wrecked. Five passengers were killed and 15 passengers and three trainmen were injured.

The train derailed near Cleveland, Va., on the 9th was a westbound freight. The engineman was killed and two trainmen were slightly injured. The cause of the derailment was not determined.

The train derailed on the Houston & Texas Central at Hammond, Tex., on the morning of January 14, about 3 o'clock, was northbound passenger No. 17. One steel coach was crushed by running violently against a locomotive on the side track. Seventeen passengers were killed and twelve were injured. The derailment was due to a loose switch which had been deranged by a brakebeam which fell from a car in a freight train. This accident was reported in the *Railway Age* of January 18.

The train derailed at Bemis, N. H., on the 14th was an eastbound freight. The train became uncontrollable on a steep descending grade at Crawford, and ran at high speed to Bemis where the engine and 30 freight cars were ditched and wrecked. The engineman was killed and the fireman and one brakeman were injured.

The train derailed near Beloit, Kan., on the 15th was a westbound passenger. The engine was not thrown off the rails, but the two passenger coaches were overturned and fell down a bank into Plum Creek. Three passengers were killed and 23 passengers and three employees were injured.

The train derailed at Groseclose, Va., on the 18th was a westbound express. The engine and 7 cars ran off the track. The cause of the derailment was an unfastened switch.

The train derailed on the Pennsylvania Lines West of Pittsburgh, at Amo, Ind., on the 11th, was an eastbound freight. In the train were eleven cars of gasoline, which took fire, and the contents of the whole was consumed, together with a small dwelling house. The cause of the derailment was a cylinder head of the locomotive, which was knocked out, fell to the ground, and then struck a switch stand so as to loosen the lever and allow the switch point to open slightly. The third car in the train was the first one to be disturbed by the loose switch point; and the rest of the train ran along the side track and into a string of standing cars.

The train derailed at New Castle, Ala., on the night of the 21st was northbound passenger No. 4. The train ran through a damaged switch and the engine and two baggage cars were ditched. The engineman, fireman and one other employee were injured.

The train derailed near Middlebury, Vt., on the morning of the 22nd was a southbound passenger. The locomotive was wrecked by the explosion of its boiler, and the fireman was killed. The engineman was fatally injured.

The train derailed near Marion, Ohio, on the 23rd was

westbound passenger No. 5. Three passenger cars were overturned and 29 passengers were injured. The cause of the derailment was obscure but was believed to be spreading of rails.

The trains involved in the accident on the Pennsylvania Railroad at Girard avenue, Philadelphia, Pa., on the 23rd, were eastbound passenger No. 22, the Manhattan Limited, and eastbound passenger No. 230. A mail car in No. 22 was derailed by the failure of a journal, and it was thrown to one side so as to foul the track on which the other train was traveling, both trains moving eastward. The mail car was badly damaged and of the several clerks in it, one was killed and eight injured. Four passengers were slightly injured.

The train derailed on the Nashville, Chattanooga & St. Louis near McCarty, Tenn., on the 23rd was a northbound local passenger. Two cars were overturned. The fireman, two passengers, one mail clerk, and one other employee were injured, all of the injuries being reported as slight. The cause of the derailment was excessive speed on a curve of 5 deg. 47 min., with super-elevation of 6 inches.

The train derailed at Conway, Ky., on the 24th was northbound passenger No. 34. The train, four hours behind time, was drawn by two engines; the second engine was overturned and one baggage car was wrecked. One engineman, one fireman and an express messenger were injured. The cause of the derailment was not determined, but it is believed to have been due to a defect in the track.

The train derailed at Middleville, N. Y., on the night of the 29th was a southbound passenger. One coach was overturned and fell down a bank. Nine passengers were injured.

The train derailed at Granger, Ill., on the 29th was an eastbound express passenger, drawn by two locomotives. Both of the engines remained on the track, but ten of the eleven steel cars in the train fell down a bank. Three passengers were killed and fourteen were injured. The cause of the derailment was not determined. The track where the derailment took place was relaid in December with new 90-pound rail on new zinc-treated ties fully ballasted, and rails fully spiked. Track was in good condition and where the cars ran off was straight, on a descending grade 26 feet per mile on a slight fill. An officer of the road writes that "the engines and cars were in first-class condition and, so far as could be determined, did not contribute to the accident. The fact remains, however, that the rails were forced out of position by some unknown cause at or prior to time this train arrived."

The derailment reported at Bradenville, Pa., on the 30th occurred on a short branch of the Pennsylvania Railroad. The train consisted of a snowplow and flanger, two locomotives and a caboose. One engine was overturned in a drift and two members of a gang of shovelers on the tracks were killed. Three others were injured.

**ELECTRIC CAR ACCIDENTS.**—Serious accidents to trolley cars were reported in January from Eliot, Me., Thompsonville, Conn., and Louisville, Ky. Of the three, the last-named was the only one attended by fatal results. In this, a rear collision on a bridge, on the 14th, three persons were killed and 20 or more injured. The accident occurred in a blinding snowstorm, a very unusual occurrence in that latitude.

**CANADA.**—Of the four notable train accidents reported in Canadian newspapers in January one only was fatal. This was a rear collision on the Canadian Pacific at Dorval, near Montreal, on the 4th. The leading train, just entering a side track, was loaded with soldiers, seven of whom were killed and 20 or more injured.

**IMPORTS INTO BOMBAY, INDIA,** of railway supplies and equipment were valued at \$7,861,433 in 1915 and \$2,961,085 in 1916.





## Four Improved Types of Electric Locomotives

Recent Developments Which Have Been Brought About  
By Demands of Traffic and Profile

**R**ECENT ELECTRIC LOCOMOTIVES were described and illustrated at the fourteenth annual electrical meeting of the New York Railroad Club, March 14, 1918. The New York, New Haven & Hartford's new 180-ton passenger locomotive was described by E. R. Hill, of Gibbs & Hill, consulting engineers. The Chicago, Milwaukee & St.

Paul were described by A. H. Armstrong of the latter company. E. B. Katte, chief engineer of electric traction, New York Central, described the new electric passenger locomotives for that road. The meeting was of particular interest because the papers read showed how the manufacturers were meeting the conditions imposed upon them by the demands of traffic, profile and limits of load on bridges in different parts of the country.

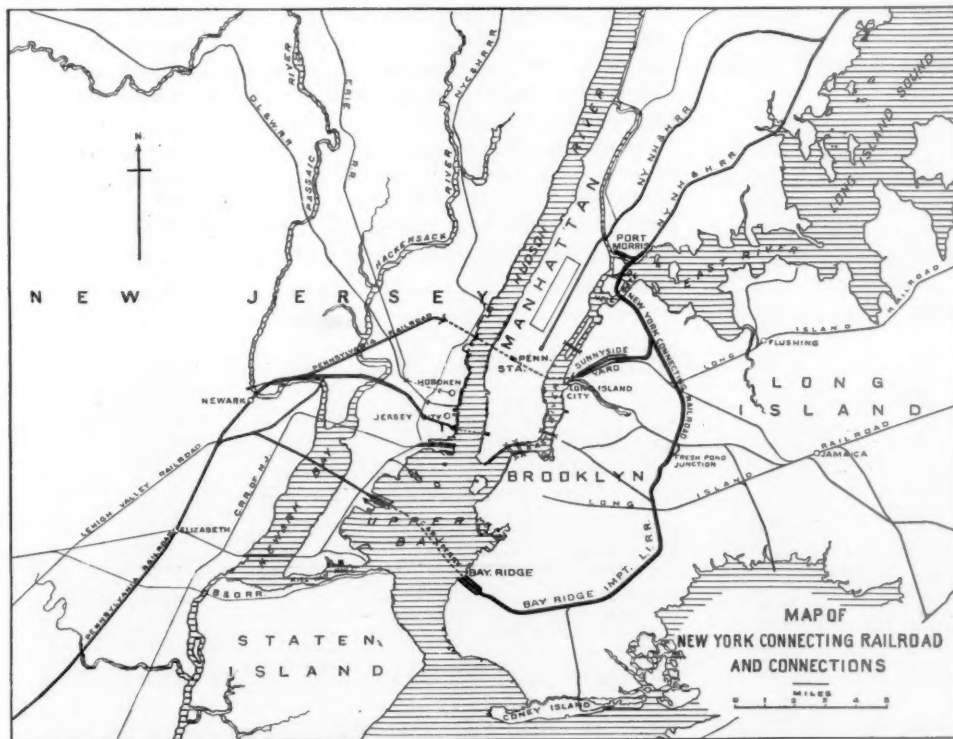


Fig. 1—Map of New York Connecting Railroad

Paul's new quill geared locomotives under construction by the Westinghouse Electric & Manufacturing Company were described by F. H. Shepard of the latter company. The new Chicago, Milwaukee & St. Paul bi-polar passenger locomotives under construction by the General Electric Com-

pany were described by A. H. Armstrong of the latter company. E. B. Katte, chief engineer of electric traction, New York Central, described the new electric passenger locomotives for that road. The meeting was of particular interest because the papers read showed how the manufacturers were meeting the conditions imposed upon them by the demands of traffic, profile and limits of load on bridges in different parts of the country.

Another condition limiting the New Haven operation is the restriction imposed by the New York Central as to total weight and axle loading of locomotives using the draw-

### 180-Ton Locomotive for the New Haven

The following information is taken from Mr. Hill's paper. The new electric locomotives for the New York, New Haven & Hartford are of the Baldwin-Westinghouse type designed to operate on the New York Connecting Railroad (Fig. 1). The profile of this is shown in Fig. 2. The Hell Gate bridge, erected at a cost of \$4,000,000, is shown in the illustration at the top of the page. The total cost of line, including the Bay Ridge improvement of the Long Island Railroad, was \$40,000,000.

Express trains operated between the Grand Central station and New Haven average 11 steel cars and weigh about 770 tons. Maximum trains of this character are of 12 steel Pullman cars and weigh from 850 to 900 tons. To handle these over the New York Connecting it was found necessary to provide heavier locomotives than are

bridges and viaducts on their lines into the Grand Central station. The New York Central's conditions limit loads on four driving axle locomotives to 47,500 lb. per axle and of locomotives with six driving axles to 41,000 lb. per axle. There are limitations also as to total weight of locomotives and the extent to which double heading is permitted.

The new 180-ton locomotives now on order represent the

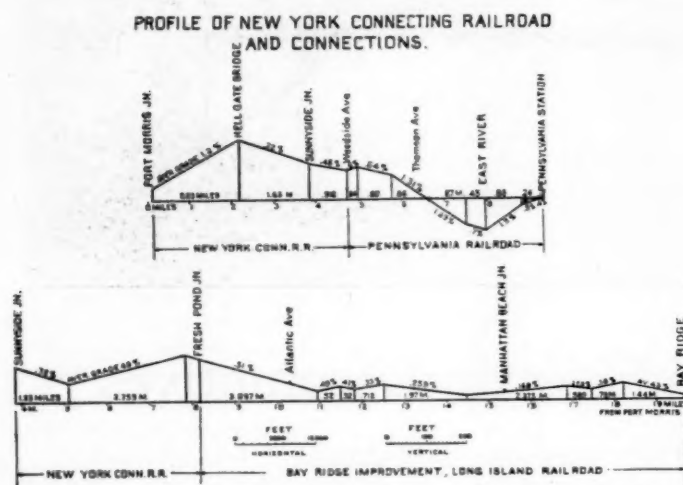


Fig. 2. Profile of New York Connecting Railroad and Connections

maximum in weight and capacity of the A. C.-D. C. type that will not exceed the New York Central's structural limitations. This, however, does not quite meet the maximum desired performance for through express trains on the New York Connecting Railroad grades. The new locomotives will handle 12-car trains on the Pennsylvania direct current terminal grade and eastbound on the New York Connecting Railroad 0.2 per cent grade, but will only handle 11-car trains on the westbound 1.2 per cent New York Connecting

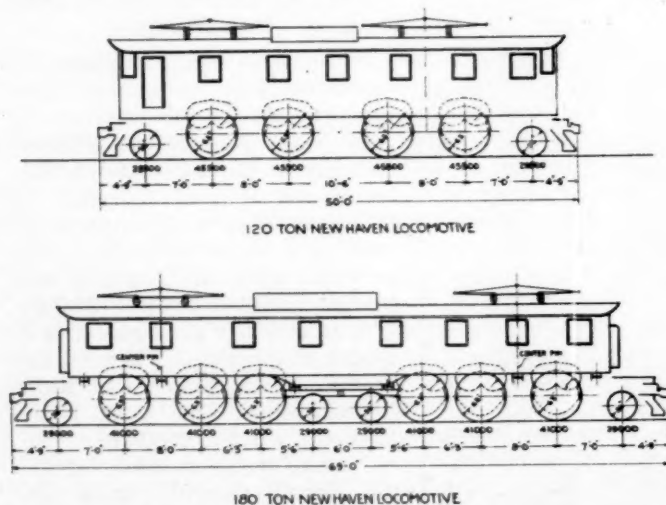


Fig. 3. Old and New Types of New Haven Locomotives

Railroad grade. This latter grade is two miles long and it is proposed to employ electric pushers for assisting westbound trains of over 11 cars up the grade; an alternative to this is to double head the engine with one of the old gearless types of locomotives.

Prior to this the latest and largest type of locomotives on the New Haven road was the 2-4-4-2 locomotives of the 073-075 series shown at the top of Fig. 3, having four driving axles and two pony axles in two trucks, each driving axle being equipped with a pair of single reduction geared motors with quill drive. The new locomotive shown on the

lower part of Fig. 3 is a duplicate of the present type of locomotive in all essential respects, the main differences being that there are three pairs of drivers on each truck instead of two, and pony axles are used at both ends of each truck instead of at the outer ends only. In all principal respects the details of the locomotives are identical with the 34 freight and heavy passenger straight single phase locomotives built in 1911 for use in freight service. The principal data regarding the three types of passenger locomotives of the road are given in Tables 1 and 2.

The motors are connected in groups of three permanently

TABLE I

Principal Design Data—	New 180-ton	Present 120-ton	Present 109-ton
Series number .....	2-6-2 + 2-6-2	073-075	01-041
Classification .....	2-6-2 + 2-6-2	2-4 + 4-2	2-4 + 4-2
Weight:			
Mechanical parts, lb.....	187,500	123,900	105,600
Electrical and air brake parts, lb.....	161,700		
Steam heating equipment and miscellaneous, lb.....	12,800	115,000	112,000
Total, lb.....	362,000	239,000	217,600
On each driving axle, lb.....	41,000	45,500	41,900
On each pony axle, lb.....	29,000	28,500	25,000
Rigid wheel base.....	14 ft. 3 in.	8 ft. 0 in.	8 ft. 0 in.
Total wheel base.....	59 ft. 6 in.	40 ft. 6 in.	30 ft. 9 in.
Length over-all.....	69 ft. 0 in.	50 ft. 0 in.	37 ft. 7 1/2 in.
Diameter driving wheels.....	63 in.	63 in.	62 in.
Diameter driving axles.....	8 in.	8 in.	8 in.
Size main journals.....	7 in. by 13 in.	7 in. by 13 in.	7 1/4 in. by 10 in.
Size truck wheels.....	36 in.	36 in.	33 in.
Size truck journals.....	6 in. by 12 in.	6 in. by 12 in.	5 1/2 in. by 10 in.
Type of drive.....	Quill-gear	Quill-gear	Quill-gearless
Number of motors.....	12	8	4
Horsepower:			
One hour .....	2,550	1,700	1,120
Continuous .....	2,025	1,350	1,125
Tractive effort:			
One hour .....	21,000	17,700	9,700
Continuous .....	14,500	12,200	6,400
Momentary max.....	47,500		
Maximum safe speed, m.p.h.....	70	55	85

in series and the speed characteristics are substantially the same as those of the original gearless locomotives; the control is to be arranged for multiple unit doubleheading of these two types. They are geared for a higher speed than the present geared type locomotives and cannot be operated in multiple unit with them.

The motors are grouped in pairs and connected by means of bearings and single reduction gearing to a quill which surrounds the axle with ample radial and end clearance to prevent it coming in contact with the axle when in normal running condition. The motors, gearing and quill, are sup-

TABLE II

Principal Service Data—	
Maximum safe speed.....	70 m. p. h.
Balanced Speed with 770-Ton Average Train:	
On level .....	60 m. p. h.
On .4 per cent New Haven grade.....	42 m. p. h.
On .72 per cent Connecting Railroad grade.....	35 m. p. h.
On 1.2 per cent Connecting Railroad grade.....	28 m. p. h.
Schedule of Express Trains New York—New Haven:	
Without stops.....	43.7 m. p. h.
With four intermediate stops.....	37.6 m. p. h.
Grand Central Station Service East and West:	
Maximum local train.....	420 tons— 6 cars
Maximum local train doubleheaded with gearless engine .....	620 tons— 9 cars
Maximum express train.....	900 tons—12-13 cars
Pennsylvania Station Service:	
Maximum eastbound express train.....	850 tons— 12 cars
Maximum westbound express train.....	770 tons— 11 cars

ported from the truck frame independent of the axle and wheels; the motors being directly above the center line of the axle. With this arrangement the weight of the motors, gearing and quill, is carried on springs and the only dead weight coming directly on the track is that of the driving wheels and axle. The center of gravity is high and good riding qualities and tracking conditions are secured.

The only connection between the motors and the driving wheels is through a group of six helical springs in each driving wheel, center connected at one end to the spokes of the wheel and at the other end to the disk at the end of the



quill. This arrangement is in use on all of the geared passenger, freight and switching locomotives of the New Haven and has given excellent satisfaction. The motors are also identical with those used on certain of the passenger, and on all of the geared freight locomotives, the total of such motors being over 400. By adopting this same type of motor, suspension and drive duplication and uniformity of parts is secured and savings in shop maintenance and operation is thereby effected.

The truck center pin is located between the first and second driving axles, thus making the truck unsymmetrical fore and aft of the center pin; this will tend to prevent oscillation or nosing of the trucks.

The drawbar pull between trucks is transmitted through a radial bar coupling and not through the cab. The weight of the cab is borne on each truck by six spring mounted pads. The truck frames are of the integral cast steel type, the entire frame and crossties being cast in one piece. The saving in weight by the use of this type of truck frame is estimated to be 3,200 lb. per locomotive. This feature is important not only because it is desirable to minimize the dead weight of the locomotives in general, but also because of the weight limitations of the bridge structures over which those engines are to operate and the guarantee which the manufacturers were required to give was that the total weight should not exceed 181 tons.

The motors and transformers are ventilated by two motor-driven blowers mounted in the cab. For train heating purposes the locomotives will be equipped with flash type, kerosene fired boilers capable of evaporating 4,200 lb. of water per hour. Tanks having a capacity for 1,440 gal. of water and 370 gal. of oil will be provided as part of the heating equipment of each locomotive.

These locomotives illustrate in a general way the adaptability of electric traction in meeting the constantly increasing requirements of railroad service. In this case, without modifying the general type or any of the mechanical or electrical details and without exceeding existing weight limitations on bridge structures, a locomotive 50 per cent larger than the present has been produced simply by the addition of a driving axle and a pair of motors to each truck with adaptation of mechanical and electrical details for the mounting and control of the additional parts.

#### Baldwin-Westinghouse Passenger Locomotive for St. Paul

The map, Fig. 4, shows the electrified section of the Chicago, Milwaukee & St. Paul. The profile for this section of

118 tons, and the heating equipment, including water, 27 tons.

The locomotive consists of two running gears, with the Pacific type wheel arrangement, coupled back to back, supporting a single cab, with the control auxiliaries and heating apparatus. The drive wheels are 68 in. in diameter, the driving wheel base is 16 ft. 9 in., the wheel base for

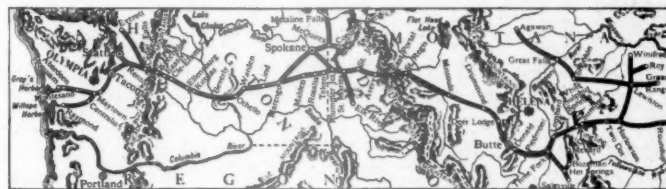


Fig. 4. Map of Electrified Sections of the Chicago, Milwaukee & St. Paul

each truck is 36 ft. 2 in., the total wheel base is 79 ft. and the total length of the locomotive between knuckles is 88 ft. 7 in. A large portion of the cab is occupied by the heating equipment, which includes boiler, water and oil tanks. The rheostats are placed near the top of the cab close to the controlling switches, the locomotive may be operated from either end and each end has its complement of meters, air brake valve, master control, sanders, etc. The controller has nine running positions corresponding to one-third, two-

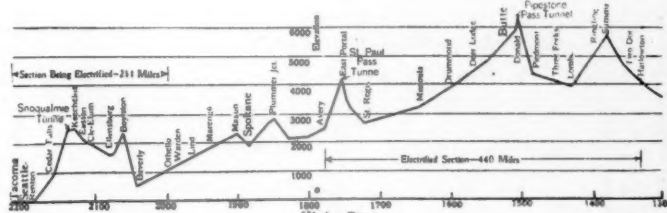


Fig. 5. Profile of Electrified Sections of the Chicago, Milwaukee & St. Paul

thirds and full speed positions, with two speed control positions on each. This gives economical operation over a wide range of speed. Regeneration from maximum speed down to a minimum of about 10 miles per hour is provided for the purpose of holding the train on down grade or for making slow-downs.

The continuous capacity of the locomotives is 3,200 horse-

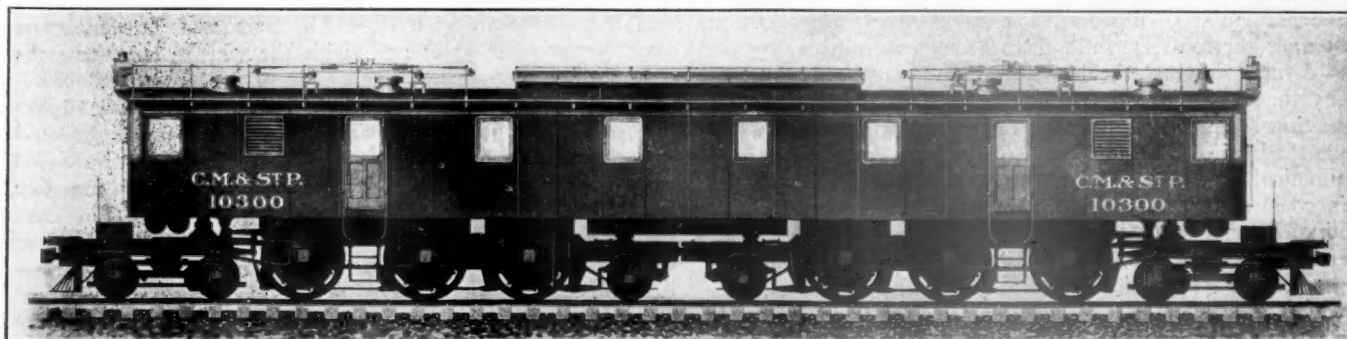


Fig. 6 Baldwin-Westinghouse Electric Locomotive for the Chicago, Milwaukee & St. Paul

line is shown in Fig. 5. The following information is taken from the paper read by Mr. Shepard.

This new locomotive, Fig. 6, ten of which are now under construction, was designed for passenger service. The weight of the locomotive complete is 266 tons, of which the electrical equipment weighs 121 tons, the mechanical parts

power, corresponding to a tractive effort of 4,900 lb. at 24.5 miles an hour. The maximum starting tractive effort will be 110,000 lb.

The motor equipment consists of six twin motors with quill drives, two of which are mounted above each driving axle. Each armature carries a single pinion and the two

drive a single solid gear mounted upon the quill shaft and held in position by quill bearings. This allows a movement of the axle within the quill shaft of  $1\frac{3}{4}$  in. from normal position.

The locomotive is provided with the well-known electro-pneumatic control. Power from the line is obtained from the 3,000-volt trolley. A motor-generator set delivering current at approximately 80 volts supplies current for train lighting and for a storage battery. The blowers, air compressors, light and control are all operated at 80 volts and their operation, due to the presence of the battery, is independent of the line power. In addition to the motor-generator set and battery there is a third source of low voltage supply, which is utilized for the operation of the auxiliaries and for the excitation of the fields of the main motors for regeneration whenever the train has acquired requisite speed. This source of power is from the axle driven excitators, of which there are two on the locomotive, each being mounted on the inside axles of the 4-wheel trucks. These axle driven generators are about the size of an ordinary street car motor and furnish current at low voltage for the excitation of the main motor field when regenerating. At other times they furnish current for the operation of the blowers and air compressors, independent of the battery. A locomotive is at all times independent of line power for the supply of air to the brakes.

It is natural to question the reason for this type of locomotive, presenting as it does certain mechanical complications as compared to other types. It was understood that

structure, but unfortunately, the yield of the rails due to wheel loads is not uniform, varying greatly, depending upon the track joints, special work, condition of ballast and subgrades. These general conditions are exaggerated by the extreme weather conditions experienced in this country.

Much importance has been placed upon such questions as center of gravity, wheel arrangement, size of wheels and equalization on steam locomotives, especially for passenger service. The steam locomotive, of necessity, consists of a large mass including boiler and cylinders carried on the locomotive frame, the driving wheels being loosely and flexibly connected thereto. Space limitations require a relatively high center of gravity. It is a curious coincidence that these limitations in the design of steam locomotives automatically secure action which inherently is easy upon the road bed, because of the flexibility of the heavy parts of the locomotive and the fact that the individual axles are relatively free from restraint due to directly imposed weight. In the electric locomotives described these advantageous features are all retained.

### St. Paul Gearless Locomotives

The gearless locomotives now under construction in the General Electric shops for the Chicago, Milwaukee & St. Paul will also operate over the line shown in Figs. 4 and 5. Following are extracts from the paper read by Mr. Armstrong:

The excellent operating results obtained during the past ten years with gearless locomotives on the New York Central's

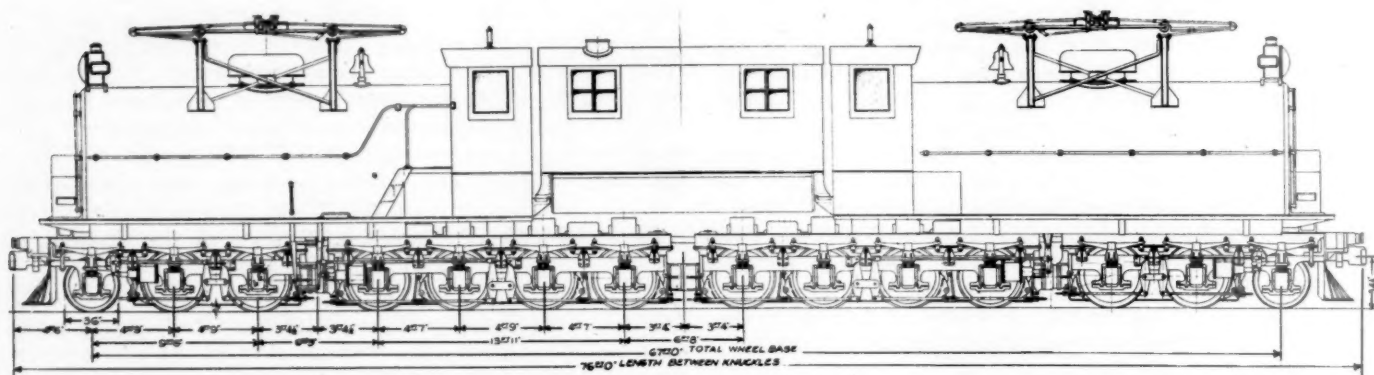


Fig. 7. Gearless Electric Locomotive Built by the General Electric Company for the Chicago, Milwaukee & St. Paul

the weight on the driving axles, both as to amount and disposition, in the present locomotive would not be accepted for additional locomotives for passenger service. This required the departure from the design of locomotives at present in passenger service. It could have been accomplished by the use of more driving wheels with smaller and lighter motors or by the use of very large motors with side rods. Service conditions require a minimum of six driving axles with a weight of 55,000 lb. on each. This can reasonably and economically be met by twin motors with quill drive, and this construction possesses advantages as follow: (1) The limitation of voltage across any commutator to 750 volts, thereby obtaining stable commutation for both motoring and regenerating. (2) The greater accessibility, the lesser restriction in design and the greater freedom from injury to motors due to their position above the axle and remote from the road bed. (3) The mounting of the motors rigidly upon the locomotive frame, thereby securing great flexibility between the road bed and the motor weight. (4) A center of gravity which is  $43\frac{1}{2}$  in. above the rail. (5) The use of a minimum number of gears and the removal of main gears. (6) A desirable wheel arrangement, with distribution and equalization.

The American railroad track is a cushioned, yielding

tracks have attracted increasing attention to this form of construction. The locomotives for the Chicago, Milwaukee & St. Paul are equipped with 14 axles, 12 of which are drivers and two are guiding axles. The armatures are mounted directly upon the axles and, with the wheels, constitute the only dead or non-springborne weight of the locomotive. This weight is approximately 9,500 lb. as compared with 17,000 lb. dead weight on the driving axles of the present geared locomotives now operating on the St. Paul. The two fields are carried upon the truck springs and there is full freedom for vertical play of the armature between them. The construction of the motors throughout is practically identical with that employed upon the New York Central's gearless locomotives, but the capacity of the locomotive is much increased and the wheel arrangements somewhat different. The general physical characteristics of the locomotives now under construction are given in Table 3.

With twelve motors per locomotive available for different control combinations, there is a possibility of securing a wide range of speed to meet the varying conditions of passenger train operation. Motors are connected three in series, or 1,000 volts per commutator for full-speed operation, but the control also permits a connection of four, six and twelve motors in series for fractional speed operation. Provision



for variable speeds is made by shunting the motor fields in all combinations of motors, but it is probable that the greatest value of the field shunt will be obtained with the full-speed connection of three motors in series. The speed possibilities of this locomotive are shown in Table 4.

It is especially desirable that a passenger locomotive have sufficient weight on the drivers and reserve motive power to haul additional train weight on occasion, and in this respect the gearless locomotives under construction present attractive possibilities. The manufacturer's guarantees cover the operation of a 12-car train weighing 960 tons against an adverse 2 per cent grade at a speed of 25 miles per hour. Under these conditions there is a demand for 55,200 lb. tractive effort at the rim of the driver, equivalent to 12 per cent co-

TABLE III

Dimensions and Weights C. M. & St. P. 3,000-Volt D. C. Locomotive.	
Length inside knuckles.....	76 ft. 0 in.
Length over cab.....	68 ft. 0 in.
Total wheel base.....	67 ft. 0 in.
Rigid wheel base.....	13 ft. 11 in.
Diameter driving wheels.....	44 in.
Diameter guiding wheels.....	36 in.
Approximate height center of gravity.....	57 in.
Weight electrical equipment.....	235,000 lb.
Weight mechanical equipment.....	295,000 lb.
Weight complete locomotive.....	530,000 lb.
Weight on drivers.....	458,000 lb.
Weight on guiding axle.....	36,000 lb.
Weight on each driving axle.....	38,166 lb.
Dead or non-springborne weight per axle.....	9,500 lb.

efficient of adhesion to the weight upon the driver. There is, therefore, ample margin both in weight upon drivers and capacity of the motors to haul not only 12 cars, but on occasion 13 or 14 cars with practically no sacrifice in schedule speed and without overloading the motors or exceeding known and conservative practice as regards loading of driving wheels. For example, the gearless locomotive now being built will permit the starting of a 12-car train on a two per

TABLE IV

Speed Characteristics C. M. & St. P. 3,000-Volt Gearless Locomotive 960 Tons Trailing Load.				
	Level	1/2% Grade	1% Grade	2% Grade
3 motor shunt field.....	63.0	47.2	38.5	30.5
3 motor full field.....	49.5	36.0	30.0	25.0
4 motor full field.....	40.5	27.0	22.0	18.0
6 motor full field.....	29.0	17.8	14.2	11.0
12 motor full field.....	15.0	8.0	6.0	4.0

cent grade with a coefficient of adhesion of only 20 per cent, and accelerate the train at 0.3 miles per hour per second.

While the manufacturing guarantees are limited to 42,000 lb. tractive effort as a continuous output of this locomotive, the preliminary tests upon a sample motor indicate that this rating is conservative and that the final test upon a completed locomotive may show values materially higher than the guarantees made. This fact is of the greatest importance and holds out wide visions of radical changes in the operation of transcontinental trains, both passenger and freight. The total weight upon drivers of 458,000 lb. is practically the same as the driver weight of the present freight locomotives now in operation on the St. Paul. If, therefore, the completed locomotive meets the expectations of the builders it offers a possibility of using the same locomotives interchangeably for both passenger and freight service.

The control of the gearless locomotives will in many respects be a duplicate of that now in operation on the geared locomotives previously installed. Provision will be made for regenerative electric braking on down grades. The geared locomotives now running utilize a motor generator set for the purpose of motor field excitation while regenerating. Careful experiments made during the past two years have demonstrated that motor generator field excitation is not essential, and taking advantage of the advance of the art, the control for the new gearless locomotives will dispense with this fea-

ture. This simplification of the control and reduction in weight and cost constitutes a marked improvement.

The original installation of the St. Paul was undertaken with a single type of road locomotive for both passenger and freight service, differing only in the ratio of the gearing between the motors and drivers. The locomotives were therefore interchangeable, except as to gears, with consequent simplifications of shop repair practice. The geared locomotives operate at a high efficiency in heavy freight service where pushers are used on up grades, but accumulated gear losses result in a low all-day efficiency of the geared locomotive in passenger service, when the profile is broken and contains long stretches of practically level track. On the other hand, the gearless motor operates at high efficiency when on level tracks or on lesser grades and it is this class of service that constitutes the bulk of the all-day duty of a passenger locomotive. The average operating speed of about 50 miles an hour shows a gain of 10 per cent in efficiency of the gear-

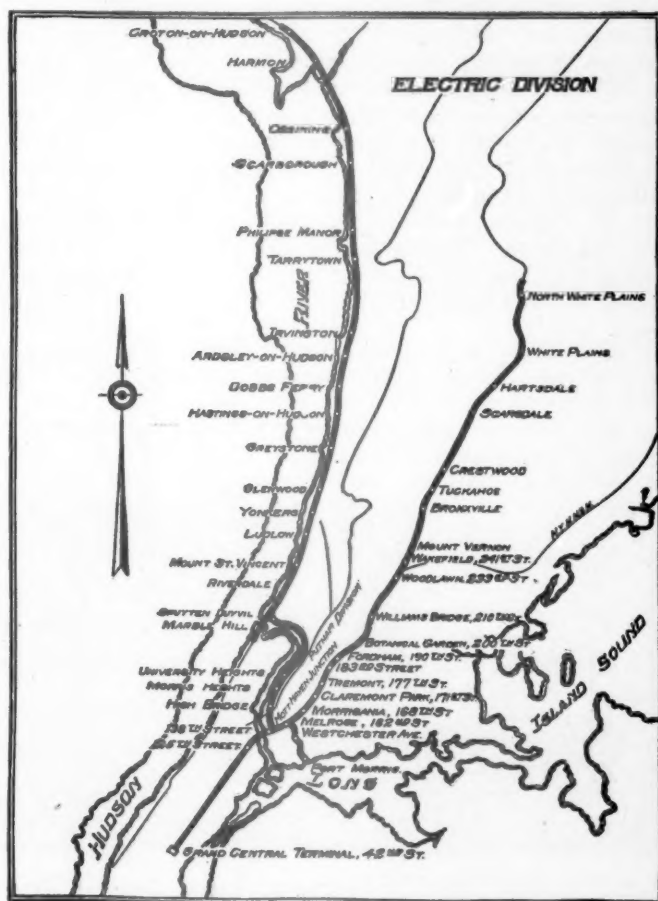


Fig. 8. Map of New York Central's Electrified Sections

less locomotive as compared with the geared type and in fact throughout the entire range of speed from 30 miles up the gearless locomotive will operate at over 90 per cent efficiency, as compared with the drooping characteristics of the geared locomotive.

The exclusion of mechanical parts, such as gears, quills, jack-shafts, side rods, etc., utilized to transmit the power from the motors to the drivers with some forms of locomotive construction, not only results in a marked improvement in the all-day efficiency of the locomotive, but is followed by an equally attractive increase in reliability and a marked reduction in maintenance expense. It is felt, therefore, that the introduction of the gearless locomotive upon the St. Paul marks a distinct advance in electric railroading and that this sort of construction, now for the first time made possible for

mountain service will result in a marked improvement in the method of handling both passenger and freight trains on this most difficult class of railroad service.

#### Gearless Locomotive for New York Central

The section of road on which the new locomotives for the New York Central will operate is shown in Fig. 8. This section of track follows the Hudson river for the greater part of the distance from Harmon to the Grand Central Terminal and no steep grade has to be contended with. One of the new locomotives designed for service on this road is shown in Fig. 9. In describing the locomotive, Mr. Katte stated:

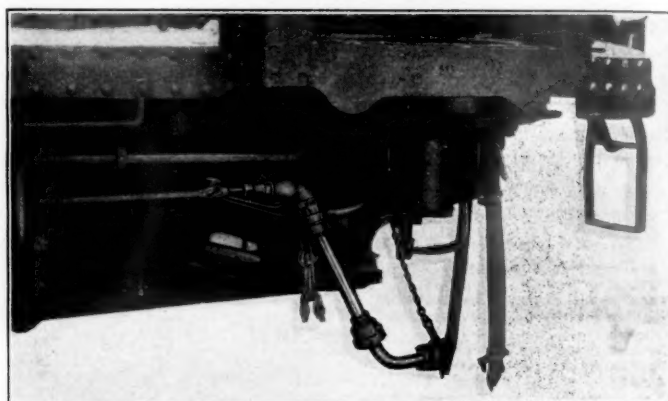
"During the past year we have received on the New York Central nine new passenger locomotives known as class T-2B. The tenth locomotive will be delivered next month. These locomotives are very similar to the earlier class T locomotives, in fact, when we asked the operating department if it desired to suggest any changes its representative held up his hands and exclaimed, 'For goodness sake, don't make any changes, you will spoil them.' As a matter of fact, there were 30 or 40 minor modifications and improvements made.

"These locomotives are driven by eight motors of the bipolar type, one on each axle. The total weight of the locomotive is 134 tons and the drawbar pull at 25 per cent adhesion is 66,000 lbs. The load is about equally divided on all wheels. The motors are known as G. E.-91-A and have a one hour blown rating of 325 hp., or a total of 2,600 hp. for the locomotive. The capacity of the locomotive is the hauling of a 1,200-ton train at 60 miles per hour. The maximum speed of the locomotive with lighter trains is 75 miles per hour.

"As a typical example of regular service a class T locomotive hauls train No. 71, weighing 1,035 tons, between the

#### All-Metal Steam Heat Connection

WITH A VIEW TO PROVIDING a connection for the steam lines for passenger cars that would reduce the trouble and expense incident to the use of rubber hose, the Barco Manufacturing Company, Chicago, has developed a connection in which no rubber is used. This



Passenger Car Equipped with Barco Steam Heat Connection

device has recently been placed upon the market after it had been in use for four years.

The Barco car steam heat connection is made up of two Barco joints of a special type and two sections of extra heavy steel pipe. Any standard steam-heat coupler head can be used on it. A locking clamp secures the upper flexible joint to the train line end valve, making it impossible for the con-

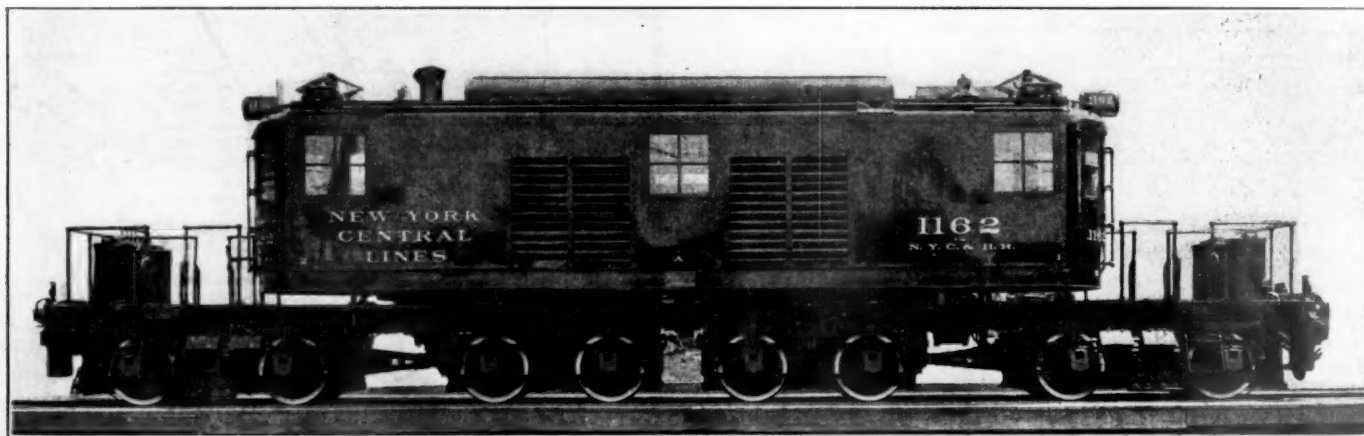


Fig. 9. Latest Type of New York Central Electric Locomotive

Grand Central Terminal and Harmon, a distance of 32 miles, making one stop, in 54 minutes running time. The average maximum speed is 57 miles per hour, and the current consumption has been shown to be equivalent to 21.9 watt hours per ton mile.

"The cost of inspecting, maintaining and repairing our electric locomotives has averaged 3½ cents per mile during the past year. The locomotives are inspected after traversing an average of 3,000 miles, which is equivalent to 33 days, between inspections. As a measure of reliability I can say that class T locomotives average 32,000 miles per locomotive detention."

THE CANAL CONTROL COMMITTEE OF ENGLAND has issued a handbook on canals, giving information relating to the controlled canals, lists of the towns served by them and names and addresses of public carriers.

nection to fall to the track. If desired lagging can be applied to the connection, but in most of the installations this has not been done. It is desirable to have a flexible bracket at the end of the train line of a type similar to that shown in the illustration.

No special tools are required to apply or remove these connectors. They will couple to cars equipped with rubber hose as well as to those having the Barco connection. The joints are more flexible than rubber hose, which makes them easier to couple. They will stand the full boiler pressure of the locomotive without leaking or bursting. The steel pipe gives a larger opening for the passage of the steam than rubber hose and eliminates the trouble due to the rubber lining becoming loose and stopping the pipe or catching in the valves. The all-metal connections remain serviceable for a long time and they also do away with frequent renewals.



# The New Zone System of Coal Distribution

## Railroad and Fuel Administrations Have Worked Out a Plan for Avoiding Cross Hauling of Coal

THE UNITED STATES FUEL ADMINISTRATION in co-operation with the Director General of Railroads announces a zone system to govern the distribution of bituminous coal during the coal year beginning April 1, 1918.

Heretofore coal has been distributed practically without regard to the distance between the mine and the consumer. Under the zone system coal will be distributed to consuming territory under restrictions that will avoid as far as possible waste of transportation facilities, but nevertheless consistent with the maintenance of the greatest possible production and a proper coal supply to all coal users. Every effort has been made, however, to preserve long established trade relations.

A statement describing the system issued by the Fuel Administrator, says:

"In view of the necessities and of the serious danger of coal shortage the United States Fuel Administration and the United States Railroad Administration have devoted several months to the study of what can be done to remove the causes which have hampered the enlargement of coal production. It has been found that a factor which has largely diminished the number of cars available for loading in the mines and the number of locomotives available to haul coal is that in a substantial sense the country has been engaged in 'carrying coals to Newcastle'; cars and locomotives have been occupied for many unnecessary days in hauling coal hundreds of unnecessary miles in order to deliver it at places much more accessible to other coal fields, whence coal could be obtained with far less tax upon the transportation energies of the country.

"The Fuel and Railroad Administrations have therefore been confronted with the responsibility of deciding whether they shall knowingly be parties to this waste of transportation, which, if not so wasted, could be used so as to make practicable the production of more coal sorely needed to carry on the war. It is clear that in the interest of the nation there should be a different policy for the future. The coal zoning plan is the result of this decision.

"After prolonged conferences with coal producers, jobbers and consumers, and with the traffic and operating officials of the railroads, zones have been established so that coal supply shall be normally derived from mines relatively near, thus preventing these abnormal and wasteful transportation movements, insuring more equal distribution of cars to the mines and more steady employment of mine labor.

"The patriotic co-operation of the many interests and individuals who may be affected by this cutting out of unnecessary transportation is confidently hoped for. When a consumer finds that he no longer has the opportunity to get his coal from a distant mine according to his custom, it is hoped that he will realize that his using another sort of coal is an essential part of the scheme of conservation in the interest of the national defense. When a coal producer finds that he no longer has a market to which in the past, regardless of the unnecessarily long haul, he has sent his coal, it is hoped he too will realize that the resulting adjustment of his business is in the national interest; that there will be more cars and locomotives, and transportation energy to transport more coal from his mines to the markets he can reach within his zone; that his business in consequence should be increased rather than diminished.

"The situation with which the Fuel and Railroad Administrations have thus had to grapple is one of infinite complexity, and no first effort to remove the waste can be perfect, or can fully meet all the constantly changing conditions. Real-

izing these limitations, the plan as established provides for elasticity through a system of special permits issued by the Fuel Administration when and as necessary."

### Effect of Zone System

The general effect of the zone system is to restrict eastern coal to eastern markets and fill the vacancy in the central and western states with nearby coal produced in those states.

In addition to the saving in transportation the system will provide for the possible retention of something like 5,000,000 tons of coal for the eastern states which heretofore has gone west all-rail. This tonnage can be readily utilized in the east. As an indication of the saving to be effected by the system, it will eliminate the movement of more than 2,000,000 tons of Pocahontas coal to Chicago and other western points over a haul of about 660 miles. Chicago can obtain this tonnage of coal, and under this system must obtain it, from southern Illinois mines with an average haul of 312 miles. Allowing for the differences in quality in the two coals, it is estimated that there will be thus saved 11,400,000 car miles or, very conservatively figured, 285,000 car days. This will permit 14 additional round trips of 20 days each from West Virginia mines to zone destinations, permitting an additional production of at least 700,000 tons of Pocahontas coal.

Similar comparisons show that on the movement of 550,000 tons annually from Kanawha districts to Wisconsin points there can be saved about 2,500,000 car miles with a consequent increased production of some 300,000 tons. On the movement from southeastern Kentucky to Chicago the saving will be about 800,000 car miles and 50,000 tons production. The elimination of the Indiana to Iowa movement will save 1,600,000 car miles and permit 100,000 tons additional production. These are only a few of the instances of transportation saving to be effected by the system.

The bituminous coal, the movement of which is regulated by the zone system, is about 300,000,000 tons, or 60 per cent of the total production. Based on this production, there will be saved on the round trip from and to the mines almost 160,000,000 car miles. This will permit the same cars to make almost 300,000 additional trips from the mines, equivalent to an increase of 5 per cent in the production. The increase in total production in 1917 over 1916 resulting from all efforts was about 8 per cent.

A large part of the coal which the system will prevent from moving west out of the eastern producing districts will be available for use in New England insofar as it can be transported there. Production in the district supplying New England via all rail routes can be increased somewhat—but there is difficulty in moving by all-rail routes the amount of coal needed and the capacity of the rail gateways to New England has been nearly reached. Improvements now being made will increase the capacity of the Poughkeepsie bridge route, but it is said to be impossible to escape the conclusion that provision must be made for a much larger movement by water in 1918 than in 1917 or New England and its people and industries will suffer.

This situation will be made the subject of a separate study by a committee representing the Shipping Board, the Railroad Administration, the Fuel Administration, coal operators in the territory involved, the railroads involved in the movement of this coal and consumers in the territory affected.

The restrictions imposed upon the movement of coal by

the zone system will make necessary some readjustment in fuel practices in various communities affected by these restrictions.

### Special Permits

Under regulations of the fuel administrator, coal of particular quality or characteristics for a special purpose, such as by-products, gas, blacksmith and metallurgical coal, will be permitted to move by permit beyond the limits imposed by the zone system.

The zone system affects all bituminous coal except:

Coal for railroad fuel for which special arrangements will be made by the Fuel Administrator and the Director General of Railroads.

Coal for movement on inland waterways which is in no way restricted by the system.

Coal delivered to Canada which is subject to regulations of the Fuel Administrator.

Heretofore, many of the mines in many of the producing districts throughout the country have been unable to keep up their production in the summer months because of the decreased demand for their product. Under the zone system these producing districts have been allotted consuming territory which will demand a large increase in production. Thus, coal which has long been available, but not used, will be added to the aggregate supply for the country as a whole. The early buying of next winter's supply of coal by consumers throughout the country is considered imperative by both the Fuel Administrator and the Director General of Railroads.

Ample production capacity has been assigned to each of the consuming zones outlined in the system, but these producing fields must be kept working as nearly as possible at their maximum capacity if the system is to be a success.

The method of enforcement of the zoning system is that the Fuel Administration will prohibit distribution beyond the limits of the zone and the Railroad Administration will supplement these prohibitions by railroad embargoes. When permits shall be issued by the Fuel Administration to admit of distribution beyond the zone limits, such permits will operate as exemptions from the embargoes, and the embargoes will so provide.

The zone system was worked out by a joint committee appointed by the railroad and fuel administration in January, consisting of Howard Elliott, of the New York, New Haven & Hartford; A. G. Gutheim, assistant manager of the car service section of the Railroad Administration; G. N. Snider, traffic manager of the Fuel Administration; S. A. Taylor, a mining engineer, and C. E. Lesher, of the Bureau of Mines.

Such a plan was repeatedly recommended by the Railroads' War Board last year for the purpose of eliminating cross-hauling and on December 19 it recommended to the Fuel Administration a carefully worked out plan prepared under its direction by F. S. Peabody, chairman of the committee on Coal Production of the Council of National Defense.

### Limitations Imposed by Zone System

The zone system will impose the following limitations upon the movement of bituminous coal.

All producing districts in Missouri, Arkansas, Kansas, Oklahoma and Iowa will be restricted in their shipments of coal to the following markets:

The states of Nebraska, Kansas, Oklahoma, Missouri and Arkansas, that portion of the state of Iowa on and west of a line via the C. R. I. & P. from Glenville, Minnesota to Mason City, Iowa, thence via the C. M. & St. P. to Nora Junction, thence via the C. R. I. & P. through Waterloo to Cedar Rapids, thence via the C. M. & St. P. to Ottumwa, thence via the C. R. I. & P. to Keokuk; that portion of the state of Texas east of the Pecos river; that portion of the

state of Louisiana on and west of the Mississippi river (both sides).

Lake Michigan and Lake Superior coal docks will be restricted in their shipments of coal to the following markets:

The states of North Dakota, South Dakota and Minnesota; that portion of the states of Iowa and Wisconsin on and north of a line from Milwaukee, Wis., via the C. M. & St. P. through Milton Junction to Madison, Wis.; thence via the C. & N. W. to Woodman, Wis.; thence via the C. M. & St. P. through McGregor, Mason City and Rock Valley, Iowa, to Sioux City, Iowa; and the upper peninsula of Michigan.

All producing districts in Illinois are restricted in their markets to the following:

From April 1 to September 30 to the states of:

*Wisconsin, Minnesota and South Dakota.*—On and south and east of a line via the G. B. & W. from Kewaunee, Wis., to Amherst Junction; thence via the M. St. P. & S. S. M. through Abbotsford and Chippewa Falls to Minneapolis, Minn.; thence via the C. M. & St. P. through Benton Junction, Ortonville and Aberdeen, S. D., to the Missouri river; thence by said river to Sioux City, Iowa.

*Iowa and Missouri.*—On and east of a line from Sioux City via the C. M. & St. P. through Manilla and Adell to Des Moines; thence via the C. B. & Q. to Albia; thence via the Wabash to Moravia; thence via the C. M. & St. P. to Chillicothe, Mo.; thence via the Wabash to Moberly; thence via the M. K. & T. to North Jefferson City; thence via the western boundary of Cole, Miller and Pulaski counties, Mo.; to the St. L. S. F.; thence via the St. L. S. F. through Neosho to the Missouri-Oklahoma state line.

*Arkansas.*—On and north of a line via the C. R. I. & P. from Memphis, Tenn., through Little Rock and Mansfield, Ark.; also, points on the St. L. I. M. & S. and St. L. S. W. south of said line of the C. R. I. & P.

*Louisiana.*—Points on the St. L. I. M. & S. and St. L. S. W.

*Tennessee and Kentucky.*—On and west of a line via the I. C. from Memphis, Tenn., through Fulton and Clinton, Ky., to Cairo, Ill.

*Illinois.*

*Indiana and Michigan.*—On and west of a line via the C. & E. I. from Evansville, Ind., through Otter Creek Junction and Brazil to Wheatfield; thence via the New York Central to South Bend; thence via the M. C. to Niles, Mich., thence via the Cleveland, Cincinnati, Chicago & St. Louis, to Benton Harbor.

All producing districts in Illinois are restricted in their shipments of coal to the following markets, from October 1 to March 31—

States of:

*Wisconsin.*—On and south of a line via the C. M. & St. P. from Milwaukee, Wis., through Watertown, Madison and Woodman to Prairie du Chien.

*That Part of Iowa and Missouri.*—on and south of the C. M. & St. P. (I. & D. Div.) from North McGregor to Sioux City and on and east of a line from Sioux City via the C. M. & St. P. through Manilla and Adell to Des Moines; thence via the C. B. & Q. to Albia; thence via the Wabash to Moravia; thence via the C. M. & St. P. to Chillicothe, Mo.; thence via the Wabash to Moberly; thence via the M. K. & T. to North Jefferson City; thence via the western boundary of Cole, Miller and Pulaski counties, Mo.; to the St. L. S.; thence via the St. L. S. F. through Neosho to the Missouri-Oklahoma state line.

*Arkansas.*—On and north of a line via the C. R. I. & P. from Memphis, Tenn., through Little Rock and Mansfield, Ark.; also, points on the St. L. I. M. & S. and St. L. S. W. south of said line of the C. R. I. & P.

*Louisiana.*—Points on the St. L. I. M. & S. and St. L. S. W.

*Tennessee and Kentucky.*—On and west of a line via the



I. C. from Memphis, Tenn., through Fulton and Clinton, Ky., to Cairo, Ill.

#### Illinois.

*Indiana and Michigan.*—On and west of a line via the C. & E. I. from Evansville, Ind., through Otter Creek Junction and Brazil to Wheatfield; thence via the New York Central Lines to South Bend; thence via the M. C. to Niles, Mich.; thence via the C. C. C. & St. L. to Benton Harbor.

All producing districts in Indiana will be restricted in their shipments of coal to the following markets:

Those portions of the states of Illinois, Kentucky, Wisconsin and Michigan on and within the following boundary lines:

*On the East.*—From Joppa, Ill., via the Ohio river (both banks) to Madison, Ind.; thence via the P. C. C. & St. L. to North Vernon; thence via the C. C. C. & St. L. to Rushville; thence via the P. C. C. & St. L. through Richmond to Indiana-Ohio State line, thence north to Michigan State line; thence via the N. Y. C. through Jackson, Mich., to Lansing; thence via the P. M. to Howard City; thence via the G. R. & I. to Mackinaw City, Mich.

*On the West.*—From Joppa, via the C. & E. I. to Arthur; thence via the Vandalia to Peoria; thence via the C. & N. W. through Nelson, Sycamore and Belvidere, Ill., to Beliot, Wis.; thence via the C. M. & St. P. through Elkhorn and Waukesha to Milwaukee, Wis.

Producing districts in western Kentucky on the Illinois Central, Louisville & Nashville and L. H. & St. L. railways will be restricted in their shipments of coal to the following markets: States of—

*Kentucky and Tennessee.*—On and west of a line via the L. & N. from Louisville, Ky., through Bowling Green, Ky., Nashville, Tenn. (including branches to Glasgow, Ky., Scottsville, Ky., and Hartsville, Tenn.); Columbia and Baugh, Tenn., to the Tennessee-Alabama state line.

#### Mississippi.

*Arkansas.*—On and south of the line of the C. R. I. & P. from Memphis, Tenn., through Little Rock and Mansfield, Arkansas.

#### Louisiana.

*Texas.*—On and east of the line of the H. E. & W. T. from Logansport, La., to Houston; thence via the G. H. & H. to Galveston.

*Illinois and Wisconsin.*—On and east and south of a line via the I. C. from Cairo, Ill., through Centralia, Clinton and Freeport to Madison, Wis.; thence via the C. M. & St. P. through Watertown to Milwaukee, Wis.

*Indiana.*—On and west of a line via the C. & E. I. from Evansville, through Otter Creek Junction and Brazil to Wheatfield; thence via the N. Y. C. to South Bend; thence via the M. C. to Indiana-Michigan state line.

The producing districts in Virginia on the L. & N., all producing districts in eastern Kentucky on the L. & N. and the C. N. O. & T. P. and short line connections, Tennessee mines on the Cumberland Valley division of the L. & N. and on the Middleborough R. R. are restricted in their shipments of coal to the following markets: States of—

*Kentucky.*—On and east of a line via the L. & N. from Louisville to Lebanon Junction and east of the main line and branches to Glasgow and Scottsville, Ky., of the L. & N. from Lebanon Junction through Bowling Green, Ky., to Nashville, Tenn.

*Indiana and Ohio.*—On and within the following boundaries:

*On the West.*—from Louisville via the C. I. & L. to Michigan City, Ind.

*On the East.*—from Cincinnati to Toledo, Ohio, via the C. C. C. & St. L. through Springfield, Bellefontaine and Berwick, Ohio.

#### Michigan.—Lower Peninsula.

All producing districts in Tennessee, Georgia, Kentucky

mines on the L. & N. main line and branches connecting at and south of Corbin and on the C. N. O. & T. P. south of Somerset; all Black Mountain and Stonega districts in Lee, Wise and Western Russell counties of Virginia will be restricted in their shipments of coal to the following markets:

The states of North Carolina, South Carolina, Georgia; that portion of Tennessee on and east of a line via the L. & N. from Mitchellville to Collinwood through Nashville, Columbia and Iron City; that portion of Alabama north of the Tennessee river; that portion of Virginia on and south of the N. & W. from Norton through Roanoke and Petersburg to Norfolk, including branches connecting at Petersburg; that portion of Florida east of the Apalachicola river.

All producing districts in Alabama will be restricted in their shipments of coal to the following markets:

The states of Louisiana, Mississippi, Alabama, Georgia and Florida; that portion of the state of Texas on and east of a line via the H. E. & W. T. from Logansport, La., to Houston; thence via the G. H. & H. to Galveston; that portion of the state of Arkansas on and south of the line of the C. R. I. & P. from Memphis, Tenn., through Little Rock and Mansfield, Ark.; that portion of the state of Tennessee lying west of the Tennessee river and on and south of the line of the N. C. & St. L. from Memphis, through Jackson and Perryville.

All producing districts in Ohio will be restricted in their shipments of coal to the following markets:

Those portions of the states of Ohio, Indiana and Michigan on and within the following boundary lines:

*On the East.*—from Ironton, Ohio, via the Ohio river to East Liverpool; thence via the Y. & O. to Washingtonville; thence via the Erie through Niles to Cleveland.

*On the South and West.*—from Ironton, Ohio, via the Ohio River to Cincinnati, thence via the P. C. C. & St. L. through Hamilton, Ohio, to Richmond, Indiana; thence via the G. R. & I. to Mackinaw City, Mich.

In the West Virginia high volatile fields, mines on the Kanawha & Michigan and the Kanawha and West Virginia and on the C. & C. west of Dundon will be restricted in their shipments of coal to the following markets:

Those portions of the states of West Virginia, Ohio and Indiana on and within the following boundary lines:

*On the East.*—from Charleston, W. Va., via the K. & M., Z. & W. and T. & O. C. through Zanesville to Bucyrus; thence via the Pennsylvania Lines west to Sandusky, Ohio.

*On the West.*—from Charleston, W. Va., via the K. & M. to Athens, Ohio; thence via the B. & O. through Chillicothe and Washington Court House to Dayton; thence via the P. C. C. & St. L. to Richmond, Indiana; thence via the line of the G. R. & I. north.

#### Michigan.—Lower Peninsula.

In the high volatile fields of West Virginia and Kentucky, mines in West Virginia and Kentucky, in the Thacker-Kenova and Kanawha districts on the N. & W. and the C. & O. and Kentucky mines in the eastern Kentucky districts on the C. & O. and the S. V. & E. will be restricted in their shipments of coal to the following markets:

#### The lower peninsula of Michigan.

Those portions of the states of Ohio and Indiana on and within the following boundary lines:

*On the East.*—from Kenova, W. Va., via the N. & W. to Sciotoville, Ohio; thence via the C. & O. Northern to Waverly; thence via the N. & W. to Columbus; thence via the H. V. to Marion; thence via the Pennsylvania Lines west to Sandusky, Ohio.

*On the West.*—from Cincinnati via the C. C. C. & St. L. to Indianapolis; thence via the C. I. & L. to Michigan City, Indiana.

*Kentucky, West Virginia and Virginia.*—Points on the main line of the C. & O. westbound to and including Cincinnati and eastbound on all lines of the C. & O. and N.

& W. to and including tidewater. From Big Sandy district of northeastern Kentucky on the C. & O. and Sandy Valley & Elkhorn coal may also move to Kentucky points on the line of the C. & O., Ashland to Louisville, Kentucky, inclusive.

In the low volatile fields of West Virginia, mines in the Pocahontas, Tug river and New river districts on the N. & W., the C. & O. and the Virginia and Clinch Valley districts in Tazewell and Eastern Russell counties along the N. & W., will be restricted in their shipments of coal to the following markets:

*District of Columbia, North Carolina and Virginia*, including tidewater terminals.

*Kentucky and Ohio*—Points on the direct lines of the C. & O. and N. & W., westbound to and including Cincinnati, Ohio and Columbus, Ohio.

*West Virginia*—Points on the direct lines of the C. & O., N. & W. and Virginian eastbound.

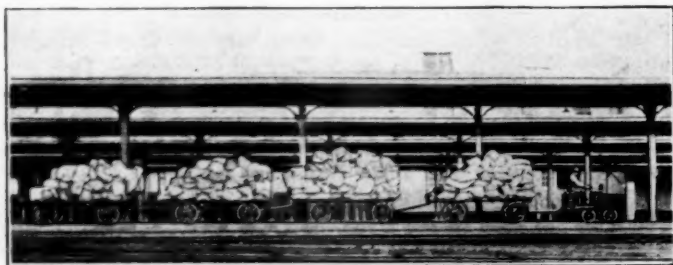
*South Carolina*—On and east and north of a line via the Southern from Charlotte, N. C., through Chester, S. C., to Columbia; thence via the S. A. L. to Denmark; thence via the Southern to Charleston.

*Lake Erie Ports* for lake transshipment only.

All mines in Northern West Virginia, Pennsylvania and Maryland on the B. & O., Western Maryland, and the Coal & Coke east of Dundon, as well as all of the mines north of these lines will be allowed to ship eastbound to all points in the states of West Virginia, Maryland, District of Columbia, Delaware, Pennsylvania, New Jersey, New York and the New England states reached by customary eastbound routes, including coal for transshipment to vessels at tidewater. They will not be allowed to ship westbound except to all Lake Erie ports for lake transshipment only, with the further exception that Pennsylvania producing districts will be allowed to ship as far west in Ohio as the line of the P. & W. V., and the W. & L. E. through Wellington to Lorain and the Pan Handle, West Virginia, producing district on and east of the line of the B. & O., C. L. & W. Branch, Bridgeport to Lorain, Ohio.

## Electric Trucks in Station Service

**T**O REDUCE THE TIME required in handling baggage, mail and express matter at the Union Terminal, Dallas, Tex., three electric trucks developed by the Orenstein-Arthur Koppel Company, Koppel, Pa., have been installed. These are tractor trucks following the general lines of the standard trucks manufactured by this company, ex-

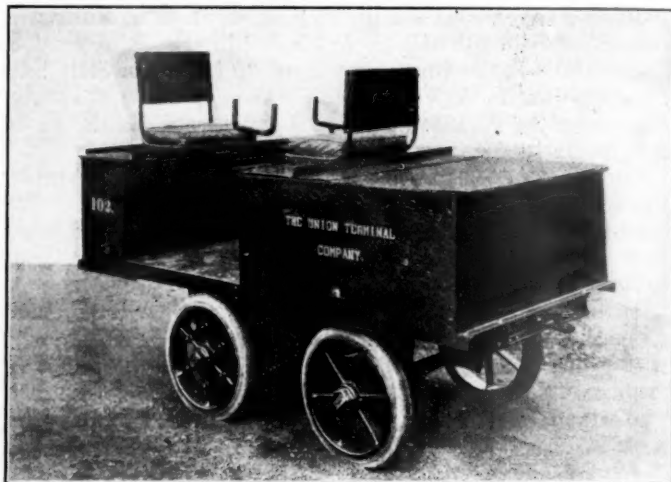


Handling Four Loaded Trucks with the Tractor

cept for several modifications designed to facilitate their application to this special service.

The Dallas Union Terminal station, which was described in the *Railway Age Gazette* of November 17, 1916, is of the through type, with 10 station and three stub tracks. The station building is located opposite the middle of the station tracks with the baggage room on the track level, while the express companies are provided with a building near one

end of the station tracks. The platforms are 15 ft. wide and extend about 750 ft. each way from the axis of the station. Trains entering the station are stopped with the forward ends near the ends of the platforms, so that mail and baggage cars are worked without interference with the passengers who have access to the platforms by means of an overhead passageway leading from the station building. The baggage, mail and express trucks are moved to and from the platforms over plank roadways crossing the tracks at the ends of the platforms. This arrangement involves a long haul which formerly required the efforts of two or more men for fully 10 minutes to bring a single baggage truck from the station to a train. It was the expense of this system and the frequent delays to trains resulting from it



Two-Seated Tractor Used at Dallas

that led to the introduction of the three electric tractors. One of these tractors now hauls four trucks over the same distance in about one third the time formerly required for one.

The trucks are equipped with batteries having sufficient storage capacity to operate for 18 hours. They are charged during a period of six hours when no trains are coming in. The busy periods extend for three hours in the early morning, and in the evening, but more or less work is done also during the 10 or 12 hours intervening. There is a seat on each end of the car and the direction of the tractor may be reversed by the operator changing his position from one seat to the other. Consequently it is not necessary to turn the truck on the platform.

The operator sitting on either of these seats controls the speed by an upright bar with a U-shaped handle at the top, and controls the steering by another similar handle. There are two pedals on the platform which can be used sitting in either direction. There is likewise an electric foot push brake in the center of the platform. The truck is steered by pushing the second handle forward or backward.

**PROPOSED RAILWAY FOR BRITISH GUIANA.**—The British Guiana press publishes brief details of a scheme, as prepared by the Director of Public Works of that colony, for a railway extending from Huntley, on the Georgetown-Rosignol Railway, in a general southwesterly direction toward the interior. The line will be of meter gage. It is proposed to lay down a third rail from Georgetown to Rosignol, thus providing the meter gage along the existing line while leaving its present standard gage undisturbed. This would enable trains from the hinterland to divide into two sections at Huntley, one going to Georgetown and the other to Rosignol, with a consequent saving of the transfer of freight and passengers and a considerable economy of time.



## Paint Spraying System

THE AERON SYSTEM of applying paint in the form of a spray by means of compressed air, developed by the De Vilbiss Manufacturing Company, Toledo, Ohio, is used extensively in the industrial field and has wide possibilities in the railroad field. It is now used by some roads for painting equipment and buildings and is a great time

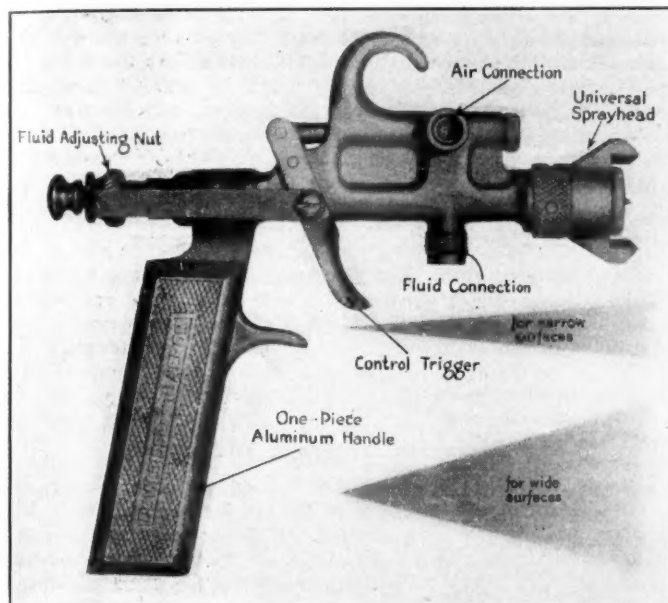


Fig. 1—Paint Spraying Nozzle

and labor saver. The system is so designed that it may be operated without materially wasting paint.

The nozzle is in the form of a pistol with the control trigger always under the operator's finger and within 4 in.



Fig. 2—A Difficult Painting Job Made Easy

of the spray head. This allows the paint to be applied exactly where it is needed and reduces to a minimum any loss in paint. An adjustable nozzle is provided which governs the width of the spray. All kinds of varnishes, enam-

els, lacquers and oil paints may be used with the Aeron system, which is easy to install and operate and does a uniformly high grade of work. It may be used to good advantage in the painting of car bodies, trucks, stencils, locomotives, car interiors and exteriors.

Among the advantages of paint spraying as compared with the old hand brush method, may be mentioned the following: Greater speed, less paint used, less wasted, rough and inaccessible surfaces covered more uniformly and the possibility of cleaner and better working conditions. A portable painting equipment has been developed which consists of a suitable air compressor, belt driven from a small gasoline engine and mounted on a portable truck. A paint tank and regulating head, together with an air receiver, are also mounted on the truck. Suitable hose and connections are provided for use with the nozzle. Where compressed air is available the air compressor and gas engine are unnecessary.

The really vital part of the Aeron equipment is the nozzle, which is shown in Fig. 1 with the connections and attachments plainly indicated. The flow of air and paint is under



Fig. 3—Paint Sprayer Used for Stenciling

the instantaneous control of the operator by means of the trigger and the universal spray head produces a flat spray which may be adjusted horizontally or vertically, or for wide or narrow surfaces. Wide surfaces may be covered with rapidity and uniformity.

In operation, the paint tank regulating head inlet is connected by  $\frac{1}{2}$ -in. air hose to the compressor air system. One or more nozzles are then connected by  $\frac{3}{8}$ -in. air hose and  $\frac{1}{2}$ -in. fluid hose to the regulating head outlet. The paint is put into the tank through a filler plug hole. With the regulator shown in Fig. 2 and the fluid adjusting nut on the nozzle, the air pressure is controlled to meet varying conditions of size of nozzle, viscosity of paint, height of nozzle above tank, etc. Special extension nozzles are provided for use in unusually difficult places.

Painting car trucks is a slow, troublesome job by the old paint brush method and Fig. 2 shows how the work may be done by use of the Aeron system. Fig. 3 illustrates the stenciling of a car body. The system is flexible and may be easily adapted to the varying conditions that have to be met in railway practice.

## General News Department

The coaling plant of the Chesapeake & Ohio, at Maysville, Ky., was destroyed by fire on March 17, together with a large quantity of coal. Estimated loss over \$55,000.

The Philadelphia Bourse has adopted resolutions asking congress to act promptly on the bill now before it, Senate Bill No. 3530, calling for discontinuance of the valuation of the railroads of the country.

At Glasgow, Ky., March 14, a fire, of unknown origin, destroyed the freight house of the Louisville & Nashville, together with other buildings and seven loaded freight cars; estimated total loss \$300,000.

Two important new subways in New York city, in Lexington avenue northward from the Grand Central Terminal, and in Seventh avenue, past the Pennsylvania station, now substantially completed, are likely to lie unused until about July 1, because of difficulty in getting materials for the electrical equipment of the power houses.

The regional and central purchasing committees of the railroad administration held a conference in Washington Wednesday for a general discussion. The committees on standardization of cars and locomotives have practically completed their specifications for Director General McAdoo's approval. The regional directors went over the plans Monday and Tuesday.

The New England Railroad Club, at its annual meeting in Boston, March 12, elected F. A. Ryer, purchasing agent of the Boston & Albany, as president of the club for the ensuing year. W. J. Backes, engineer of maintenance of way of the New York, New Haven & Hartford, was chosen vice-president.

The right of the Texas Railroad Commission to prescribe freight rates is to be tested in court, the Missouri, Kansas & Texas, and other roads, having entered a suit at Austin on March 15, asking for an injunction against the commission on the ground that, while the railroads are under the control of the federal government, the state commission has no rate-making authority.

In a fire in the Southern Pacific terminal at Lordsburg, N. M., on the 14th of March, a roundhouse, six locomotives, a number of freight cars and a large amount of stores, including fuel oil, were destroyed, the total loss being estimated at several hundred thousand dollars. The fire spread to and destroyed a number of dwellings in that part of the town occupied by Mexicans.

The proposed tunnel for automobiles beneath the Hudson river, between Jersey City, N. J., and New York city, is now definitely recommended by the New York State Bridge and Tunnel Commission, which has sent a report to the governor saying that the work of construction ought to be begun at once. This recommendation is based on the original designs of Jacobs & Davies, prepared in 1913, with certain modifications made recently, at the request of the commission, by Gen. George W. Goethals. The cost is estimated at \$12,000,000 and the time of construction three years.

A garden at every section-house is one of the food-producing measures which the Southern Pacific hopes to put into effect this season. Agents, section foremen and trackmen, from Portland to El Paso and San Francisco to Ogden, are being instructed to convert to vegetable gardens all suitable ground available. In addition, the company is endeavoring to lease all cultivable land which it owns (not used by employees) and a good deal of the right-of-way land adapted to truck gardening or agriculture, is being leased. Vegetable gardens were made last year by hundreds of employees with great success.

Congestion of freight at the north Atlantic ports continues about the same as it has been for the past three weeks. Great progress has been made, since the advent of mild weather, in

moving delayed shipments, but large quantities of food, machinery and other things for Europe have been shipped from western points since March 1, and these take the place of the delayed shipments which have been moved. At the six principal ports about 8,000 carloads are still held, in cars; and over 20,000 carloads of freight are lying in storehouses and on piers or on the ground. At the beginning of this week the number of eastbound loaded cars above normal in "eastern" territory was 40,294.

### Thirty-fifth Engineers in France

Word received from Capt. William R. Pearson, of Company C, 35th Engineers (Railways), indicates that that regiment is now in service in France. Capt. Pearson was formerly assistant valuation engineer of the Nashville, Chattanooga & St. Louis. The 35th Engineers was stationed at Camp Grant, Rockford, Ill., previous to its departure for Europe.

### Universal Interline Billing

Director General McAdoo has issued an order establishing universal interline billing of freight between all railroads subject to Government control. This order also contemplates a simplification of divisions, so that much of the accounting work connected with the making of these divisions will be avoided.

The order goes into effect May 1, and is in the form recommended by the Accounting Officers' Association. A subsequent order will be issued for simplified bases for apportioning inter-road freight revenues.

### Car Shortage Increased

The net shortage of freight cars on March 1, according to reports compiled by the American Railway Association, amounted to 138,102, as compared with 98,044 on February 1, 89,995 on January 1 and 117,132 on December 1. The bulletins giving these figures are not being issued in the form they were before the government assumed control of the railroads but the figures are still being compiled in comparative form. On January 1 there were surpluses amounting to 20,337 and a total shortage of 110,332. On February 1 the surplus was 24,297 and the total shortage was 122,341. On March 1 the surplus was 21,890 and the shortage 159,992, making the excess of unfilled orders 138,102.

### Locomotive Consulting Board

Frank McManamy, manager of the Locomotive Section of the United States Railroad Administration, has appointed the following railroad officers as a consulting board to consider matters relative to the maintenance of locomotives, the distribution of locomotives to various shops for repairs, shop production and practices, and other matters of a similar character: H. T. Bentley, superintendent of motive power, Chicago & North Western; C. E. Chambers, superintendent of motive power, Central of New Jersey; C. E. Fuller, superintendent of motive power, Union Pacific; J. Hainen, assistant to the vice-president, Southern; D. R. MacBain, superintendent of motive power, New York Central Lines West; John Purcell, assistant to the vice-president, Atchison, Topeka & Santa Fe.

### Indianapolis Improvement to Be Finished

Director General McAdoo, on the recommendation of Commissioner Harlan, of the Interstate Commerce Commission, has ordered that the work of track elevation at Indianapolis, Ind., be continued until completed. In a report to the director general, Commissioner Harlan recommended that the work be permitted to go on in a modified form. The partial completion has left streets in the business district of the city in a condition dangerous to pedestrians, a menace to health and



costly to traffic. Between \$7,000,000 and \$8,000,000 has been expended already in this elevation work. Practically 75 per cent of the steel necessary is on the ground. The cost of completing the work will be approximately \$6,000,000, to be borne equally by 14 different railroads.

### Extensive Inventories Called For

Director General McAdoo has issued a general order calling on all carriers subject to federal control to commence, prior to May 1, taking an inventory of materials and supplies by actual count, measurement, weight, etc., and immediately upon completion thereof to adjust the inventory, by additions and deductions, to December 31, 1917. But any carrier that has taken an inventory in the form indicated within 90 days prior to December 31, 1917, or subsequent to the latter date, is not required to take an additional inventory, but is directed to adjust the inventory previously taken to December 31, 1917.

The inventory is to be preserved in the files of the carrier and is presumably required for the purpose of keeping an accurate record of the property taken over by the government.

### Railway Exempts Soldiers from Land Payment

B. A. McAllaster, land commissioner of the Southern Pacific, San Francisco, Cal., announces that soldiers and sailors who have been buying Southern Pacific lands on the installment plan are exempted from payments until nine months after the termination of the war, or of their service with the army or navy. All that will be required of a purchaser is that he apply to the company within ninety days after he is released from service and the date will be fixed, within nine months, when the first of his payments will fall due, the others to follow a year apart in their original sequence. No interest will be charged him in the meanwhile. In making this arrangement the Southern Pacific has anticipated the so-called Soldiers' and Sailors' Civil Rights or Moratorium Bill, as it has had this rule in effect since May 10, 1917.

### Extensive Floods

Press despatches of Thursday, March 14, reported disastrous floods at Hornell, Corning and other places in New York state; at Dover, N. H.; Charleston, W. Va., and in southern Michigan. Derailments because of flood conditions occurred at Knoxville, Pa., on the Buffalo & Susquehanna; near Corning, N. Y., on the Erie; at Lindley, N. Y., on the New York Central, and near Nunda Junction, N. Y., on the Pennsylvania Railroad. In the last named accident three trainmen were killed. At Dover, N. H., a wooden bridge of the Boston & Maine, 400 ft. long, was carried off its foundations. In lower Michigan, railroad traffic had to be suspended in many places.

### Recuperation Camp for Soldiers

Guy Adams, manager of mail traffic of the Union Pacific has given a part of his Double Header ranch as a camp for convalescent soldiers and sailors who were previously in railroad service. For the purpose of administering this project the Railroad Men's Mountain Home Association has been incorporated, and to this the land, about 40 acres, has been deeded. The Double Header ranch is situated in Turkey Creek Canyon, 16 miles above Morrison, Colorado. The ranch comprises 160 acres and is covered with pine, spruce and cottonwood timber. The property has seven of the finest springs in the state at the foot of Double Header mountain after which the ranch was named.

Mr. Adams' plan to finance the project is to give every railroad employee in the country from president to section hand a chance to contribute to its support. No fixed amount will be asked for but all contributions large or small will be welcome. The First National Bank of Denver will act as treasurer of the association and custodian of the funds, and all gifts should be sent to this bank. None of the trustees will receive remuneration for services, and the association will be a non-profit-making association. It is hoped to be able to take care of 100 railroad men by July 1, and 1,000 men on January 1, 1919.

### Bad Results of Government Control

From lakes and seashore resorts, from Hawaii and the White Mountains, comes a wail over the government abolition of the "literary bureaus" of the railways. No more of the multichrome folders, with crystal mountains, emerald lakes, and golden landscapes! No more alluring photographs mounted over a still more alluring text! An actual holiday is often a prosaic affair. But what joy compares with mulling over piles of resort advertisements, each dealing with a perfect paradise? Where is there a style like that of the railways' literary agents? Often they are weak in grammar, but like Ruskin they are not afraid of wild adjectives and word-pictures. One can only hope that the folders on hand will last out this season, and that the war will end in time to renew a glowing succession.—*New York Evening Post*.

### A Very Unusual Train Accident

This over-worked title was used in the newspapers last Friday, March 15, with entire appropriateness—to denote the derailment and wrecking of steel sleeping cars by a boulder, weighing about three hundred tons, which fell from a ledge at the side of the roadway just at the moment when these cars were passing, and after the engine and first three cars of the train had cleared the spot.

This accident happened to westbound express train No. 19, of the Pennsylvania Railroad, near Elizabethtown, Pa., 17 miles east of Harrisburg, at 1 a. m. on March 15. The boulder measured 24 ft. long, 12 ft. wide and 8 ft. thick and it fell from near the top of a cut about 70 ft. deep. It first struck the third car in the train and this and the two following cars were knocked off the rails and wrecked. The rock had to be blasted to clear the track.

Two passengers were killed and 24 passengers and 2 trainmen were injured.

### Union Pacific Roster of Employees in Military Service

In a recent circular sent to heads of all departments, E. E. Calvin, president of the Union Pacific and the Oregon Short Line, asks that the following information be secured concerning each employee of the System who has answered the call of his country: (1) The name of the man in service; (2) the character of his employment on the Union Pacific and length of service; (3) his rank; (4) the branch of service to which he has been assigned; (5) his regiment; (6) his company or corps (or ship, if he is in the navy); (7) place of encampment, (8) name and address of parents or nearest relative. This information will be kept up to date and whenever a Union Pacific man meets with a mishap abroad assistance will be rendered him or to members of his family, should such assistance be needed. Ballard Dunn, special representative of the president of the Union Pacific, will have general supervision of the preparation of these rosters. Each district terminal, main shop and such other points as may be necessary will secure information concerning the men formerly employed who are now under arms and will forward duplicate rosters from time to time to the company's headquarters at Omaha.

### Daylight Saving Bill Passed

The daylight saving bill, by which standard time throughout the United States will be advanced one hour at 2 a. m. on the last Sunday in March, which this year comes on March 31, and be set back one hour on the last Sunday in October, was passed by the lower House of Congress on March 15, after having been passed by the Senate last year; and on the following day the Senate concurred in the House amendment, changing to seven months, instead of five, the period in which the abnormal time shall be used. The law provides that the Interstate Commerce Commission shall define the limits of five zones of standard time, "having regard for the convenience of commerce and the existing junction points and division points of common carriers," and that the standard time of each zone shall govern the train movements of all common carriers. In other words, the railroads' standard times, Eastern, Central, Mountain and Pacific, and also Alaska time, one hour slower than Pacific time, will now be United States Government standards. This law, giving

statutory authority to our standard times will be in effect, not only during the seven months in which clocks are run ahead of time, but also throughout the whole year.

### Trade Paper Advertisers to Co-operate in Third Liberty Loan

One of the features of the Third Liberty Loan, or at least as far as the trade and technical papers are concerned, will be a plan whereby advertisers will devote their space for one or more issues to Liberty Loan advertising, the papers themselves, in most cases, supplying the copy, art work and cuts. The idea originated with a committee of the New York Business Publishers' Association and has received the sanction of Secretary McAdoo in the following letter to Guy Emerson, director of publicity for the Liberty Loan Committee for the Second Reserve District:

Washington, D. C.

I have your letter of the 5th of March with regard to the liberal advertising space which members of the Business Publications' Association will devote in business papers to the Third Liberty Loan. Will you kindly convey to the association the secretary's sincere thanks for their patriotic action? The business papers co-operated most effectively in the first and second campaigns and the secretary deeply appreciates their promise of loyal support for the third issue.

(Signed) G. R. Cooksey, Asst. to the Secretary.

### Railroad Administration to Have Early Statistical Reports

Director General McAdoo has perfected arrangements for obtaining statistics of railroad operations for his own use and for the information of the public so that information will be available more promptly than heretofore.

Some 15 to 20 of the principal carriers will be required to send by telegraph a statement of weekly earnings. These will be available about the fifth or sixth day after the close of the period which they cover and are expected to fairly indicate the trend of earnings for the entire country.

About the twentieth of the following month all Class 1 roads will report earnings and expenses for the previous month. Joint facility rents, car rents, etc., and tax accruals, exclusive of war tax, will be included.

All Class 1 carriers will be required to make promptly the monthly reports of operating results now required by the Interstate Commerce Commission, and the data will be published about the tenth or fifteenth of the second month. The bulletin of the commission has been modified in certain respects so that the earnings for the month and the period can be examined upon the basis of the three years' average which is used in fixing the compensation of the carriers.

All of this information will be placed at the service of the public as soon as compiled at Washington and will, it is believed afford earlier and more reliable information of this sort than has ever been available in the past.

### Canadian Society of Civil Engineers

The first general professional meeting of the Canadian Society of Civil Engineers to be held in Toronto March 26 and 27 will be devoted to a discussion of the present fuel and power situation and there will be several papers of particular interest to railway men.

The headquarters for the convention will be located at, and the meetings will be held in the theatre lecture room of the Physics building, Toronto University.

Among the papers of interest to railway men will be the following:

Transportation from the Fuel Viewpoint, by W. N. Neal, general secretary of the Canadian Railway Association for National Defence, Montreal, Que.

An Illustrated Address on "The Erection of the Quebec Bridge," by Geo. F. Porter, engineer of construction, St. Lawrence Bridge Company, Montreal, Que.

Railway Electrification, by John Murphy, Chief Electrical Engineer, Department of Railways and Canals, Ottawa, Ont.

## Traffic News

In St. John, New Brunswick, it is reported that the Canadian Pacific is considering a proposal from the United States government to send two hundred thousand tons of export freight, monthly, through that port during the coming summer.

The chairman of the Texas Railroad Commission has notified R. H. Aishton, regional director, that Texas farmers expect to ship north, within the next six weeks, about 400 carloads of spinach, this being the estimated crop from 5,000 acres. Most of this spinach is to be sent by express.

Passengers to and from stations on the Long Island road now constitute nearly three-fourths of the total number using the station of the Pennsylvania Railroad at Seventh avenue, New York city. The total number of passengers using the station in the year 1917 was 18,148,605, of whom 13,224,258 were Long Island passengers and 4,924,347 were those of the Pennsylvania Railroad.

The Food Administration has appointed three regional traffic managers to co-ordinate the work of the Food Administration and the Railroad Administration by facilitating the movement of foodstuffs, reducing delays in loading, unloading and returning cars, etc. The men appointed are: Charles Barham, general freight agent of the Nashville, Chattanooga & St. Louis, at Atlanta, Ga.; J. H. Cherry, assistant general freight agent of the Illinois Central, at Chicago, and Nat Duke, assistant freight traffic manager of the Delaware, Lackawanna & Western at New York.

The car service section of the Railroad Administration has issued a circular to all railroads, stating that Col. J. S. Fair, of the Quartermaster Corps, in charge of the remount division of the National Army, has requested that arrangements be perfected whereby cars will be promptly furnished for the shipment of animals from points of assembling by contractors to various central points for inspection by the purchasing officers of the army. If for any reason the necessary cars are not available or cannot be furnished without delay, the facts must be promptly reported to the car service section.

The Senate Committee on Interstate Commerce has begun holding hearings at Washington on a bill introduced by Senator Poindexter, of the State of Washington, proposing an amendment to the fourth section of the interstate commerce act calculated to impose an absolute prohibition against charging higher rates for short hauls than for long. Former Senator J. L. Bristow, chairman of the Kansas Public Utilities Commission, and J. F. Shaughnessy, of the Nevada Railroad Commission, testified before the committee on March 13, declaring that the present law imposes a hardship on shippers and asked that discretion in the matter be taken out of the hands of the Interstate Commerce Commission.

The Advisory Committee on Waterways recently appointed by Director General McAdoo has submitted a preliminary report recommending the increased use of a number of canals to transport coal during the summer. The membership of the committee has been increased by the appointment of Calvin Tomkins, former dock commissioner, New York, and M. J. Sanders, of New Orleans, manager of the Leyland Steamship lines.

### Congressional Limited Restored

Director General McAdoo has decided that in reducing the passenger train service between New York and Washington shortly after the first of the year he cut too deep. After an investigation of the increasing travel he has ordered the restoration of the Pennsylvania's Congressional Limited, effective on March 17, as a train of 10 parlor cars leaving Washington at 4 p. m. and arriving at New York at 9:15 p. m., and leaving New York at 3:07 p. m. and arriving at Washington at 8:45 p. m. There is an extra fare of \$1.50 between New York and Washington and of \$1.25 between New York and



Baltimore. Formerly there were no extra fares on this train other than the regular Pullman charge for seats.

### Anti-Loss and Damage League

This organization, the purpose of which is indicated by its title, has taken for its special mission the campaign for the adoption of proper containers for freight; that is to say, for the abolition of flimsy pasteboard boxes and such like things, and the substitution of wooden or metal boxes of sufficient strength for the uses to which they are put. The managing director is J. H. Leonard, 1133 Broadway, New York City; and the other directors are L. O. Hedden, New York; H. C. Yost, New York; John Meigs, Philadelphia; W. J. Kelly, New York; H. C. Guiremand, New York; J. C. Barker, Richmond; F. B. Haile, Washington; Chas. C. Kain, Chicago; E. F. Brooks, Buffalo; J. C. Post, St. Louis; and L. S. Heald, Baltimore.

### Increase in Live Stock Movement

Director General McAdoo has received the following report of the comparative receipts of live stock at various stock yards for the month of February, showing a substantial increase over the same period of last year:

	Cars.		
	1918.	1917.	Increase.
Chicago .....	26,083	20,541	5,542
Kansas City .....	10,136	9,101	1,035
Omaha .....	11,142	10,126	1,016
East St. Louis.....	8,342	6,221	2,121
St. Joseph, Mo.....	6,137	4,500	1,637
Denver, Colorado.....	1,909	1,892	17
Sioux City, Iowa.....	5,298	5,293	5
South St. Paul.....	4,067	3,814	253
Total .....	73,114	61,488	11,626

### Store-Door Delivery in New York City

The committee of commissioners which is investigating the subject of freight delivery in New York city, and which is to make a report to Director-General McAdoo, held a conference with mercantile interests, trucking men and railroad officers in New York city, on Tuesday of this week, and the result is a "report of progress"; but when the proposed plan will be ready for presentation to Mr. McAdoo is not stated. Commissioner James S. Harlan, of the Interstate Commerce Commission, chairman of this committee, says that on account of the vital importance of New York city as a freight terminal for goods which are being sent to Europe, or are otherwise necessary in the prosecution of the war, a radical change in the present practices must be made; and he feels assured already of the co-operation of the railroads and the team owners.

### The New York and Connecticut Freight Line

This is the name of a corporation, with headquarters, at 38 Park Row, New York City, which announces that, beginning April 1, it will run five-ton automobile trucks, with five-ton trailers, daily, between New York City and New Haven, Conn., a distance of about 75 miles. It is proposed to run a regular through and interurban auto truck service doing business at New Rochelle, Mamaroneck, Port Chester, Greenwich, Stamford, South Norwalk and Bridgeport. Freight will be taken from the door of the shipper and delivered at the door of the consignee, on the same day. Including the store-door delivery and the elimination of handlings, the new concern hopes to do as well as the express companies, in the way of efficiency; and to make rates "virtually on a par with freight rates" when the cartage at both ends is considered, and the uncertainty of present freight conditions is taken into account. The general manager of the company is W. G. L'Hommédieu, and the New Haven office is at 185 Church street.

A tariff printed on the back of the company's card, showing rates on lots of one ton or over and not more than five tons, names 50 cents per 100 lb. as the through rate between New York and New Haven and 30 cents per 100 lb. for the shortest distances. On lots weighing over five tons special rates will be made.

### Union Ticket Office at Atlanta

Director General McAdoo has authorized C. H. Markham, Regional Director, Southern District, to consolidate the city ticket offices in Atlanta, Ga., into one union office at 74 and 80 Peachtree street. The lines now maintaining separate offices in Atlanta are the Nashville, Chattanooga & St. Louis, the Louisville & Nashville, the Atlanta and West Point, the Southern, the Georgia Railroad, the Central of Georgia, the Seaboard Air Line and the Atlanta, Birmingham & Atlantic.

This change will result in a substantial saving in rentals and will also add to the convenience of passengers, as the new office is centrally located and will be well manned by efficient and experienced men. The consolidation will take effect on April 1 or as soon thereafter as possible.

Investigations as to the possibility of consolidating the ticket offices in New York, Chicago, St. Louis and other cities are under way.

### The Canadian Railroad Rate Advance

The Canadian Government has approved the order of the railway commissioners authorizing a general increase of 15 per cent in both passenger and freight rates throughout the Dominion of Canada. This matter had been under consideration for more than two months because of an appeal from western Canada against the proposed increase. The Order in Council which is now issued stipulates that the increased rates shall terminate one year after the close of the war and that the Canadian Pacific, the only large road which is now prosperous, shall pay to the government, as a war tax, all income above what was received in the year 1917. This special tax must in no case be less than \$7,000,000 a year, unless the total net revenue of the company from all sources should be insufficient to pay normal dividends of 10 per cent.

### Appeal to Canadian Shippers

[From Canadian Railway Association Bulletin No. 2]

The average freight car, carrying your goods, Mr. Canadian Shipper, goes only half-filled. You may perhaps be loading a little better than that average. You may think it is "nobody's funeral but your own," since you pay the railways the legal rate and should be allowed to waste space if you like.

But the fact is that all Canada is vitally concerned. The waste of car space is not your "funeral," but the country's "funeral." There are fewer freight cars in Canada than are needed every day. Munitions shipments, shipments of most essential materials, such as food, coal, raw materials, are being held up for lack of cars. If you would see to it that your shipping department filled its cars to full cubic or weight-carrying capacity, you would be helping to double the freight car equipment of Canada at a time when cars are almost priceless. Please have a personal interview with the men who handle your shipping. They will remind you, of course, of the convenience of loading "one order to a car." They may say there is additional labor cost for packing a car beyond a certain point. They may indicate that your shipping methods would thus have to be altered, or that your customer's convenience would not be as suitably met. Possibly not. But since your prosperity depends upon the prosperity of the whole country and our successful conduct of the war—you will surely see the importance of making your allotment do maximum service in minimum time.

By an appeal for heavier loading the Director of Overseas Transport has succeeded in making 1,000 cars do the work of 1,200 which had previously been considered full cars. One implement concern in Canada found that by a skilful packing of parts and the building of a rough "deck" in each car it was able to save 12 cars on a shipment of 800 wagons; 32 cars on a shipment of 3,000 riding ploughs; 52 cars on 1,200 binders.

A flour shipper told us he could not afford to load cars to full capacity because of the high labor cost involved. On investigation it was found that he had been trying to load each row of bags to the top of the car while the loaders were still working from ordinary floor level. Naturally the lift was heavy and awkward. When his shippers were shown the simple little trick of laying the bags in "steps" running down from the ends of the car to the door the difficulty was solved.

## Commission and Court News

### Personnel of Commissions

Oscar S. Straus, chairman of the New York State Public Service Commission, first district, has been reappointed for a term of five years.

Winthrop M. Daniels was elected on March 16 as chairman of the Interstate Commerce Commission for the ensuing year, succeeding Henry C. Hall, in conformity with the commission's practice of rotating its members in the chairmanship in accordance with seniority. Mr. Daniels has been a member of the Interstate Commerce Commission since early in 1914. He was appointed by President Wilson in January, but the appointment was not confirmed by the Senate for several weeks because of some opposition on account of the position he had taken in a valuation case while he was a member of the Board of Public Utilities of New Jersey. He was born at Dayton, Ohio, on September 30, 1867, and was graduated from Princeton in 1888. For nearly 20 years he was Professor of Political Economy at Princeton University, of which President Woodrow Wilson was then president. When Mr. Wilson became governor of New Jersey, in 1911, he appointed Professor Daniels to membership on the Board of Public Utilities, which position he held until his appointment to the Interstate Commerce Commission. While a member of the faculty of the university he wrote several text books which have been used in many colleges, including "The Elements of Public Finance." He also lectured on public finance and on railway economics and has been an editorial writer on the New York Evening Post. He was reappointed a member of the Interstate Commerce Commission on the expiration of his term a little over a year ago and the confirmation was again delayed in the Senate by the opposition of Senator Cummins. He is regarded as one of the ablest members of the Interstate Commerce Commission and displays a keen interest in the economic questions which arise in connection with the regulation of railroads.



W. M. Daniels

### Court News

#### Recovery of Illegal Taxes

The federal district court for the Eastern District of Pennsylvania holds that in a suit against the United States to recover internal taxes alleged to have been erroneously or illegally collected, the suit is "brought" within the meaning of the statutory provision (limiting the time for bringing suit to two years after the cause of action accrued) when the summons subsequently served is issued.—*Mill Creek & Minehill N. & R. v. United States*, 246 Fed., 1013. Decided November 22, 1917.

#### Injuries to Employee Engaged in Repairs

A helper to the boiler maker was sent into the water tank of an engine tender, brought to the shop for repairs, to fasten the inside brace rods. Before finishing his work he started to leave the tank through the manhole, and for that purpose stood on a brace rod which was loose at the end, though this fact had not been discovered by him. It yielded to the pressure, and he fell

to the floor. In an action for his resulting injuries the Iowa Supreme Court holds that the railroad was not negligent, as the place of work was not inherently dangerous, but was only dangerous because the brace rod was loose, which could be discovered only from observation on the inside. It was for the very purpose of discovering and repairing the brace rod that he was in the tank, and some observation on his part was a part of the work of repairs delegated to him.—*Riback v. C., St. P., M. & O. (Iowa)*, 166 N. W., 292. Decided February 9, 1918.

#### Boarding Train from Unsafe Place

In an action for injuries to the plaintiff while preparing to board the defendant's train, when struck by the running board or step board, the Massachusetts Supreme Judicial Court holds that the act of a railroad in tolerating a practice on the part of the public to take trains from a certain unsafe space beside the track was not an inducement or invitation from the railroad to an intending passenger to use such space, and one using it was not a passenger. To one not a passenger, because seeking to board a train at an improper place, and therefore a trespasser, or at most a licensee, the railroad merely owed the duty to refrain from wilfully, recklessly and wantonly exposing him to injury. The evidence was held to show that the place to which the public, in entering and leaving trains, was invited was the space made level for such purpose between the station and the nearer rail of the track; not the manifestly narrow, inappropriate and dangerous space between the ends of the sleepers and a riprap wall to protect the station and tracks from the action of the advancing sea, which the plaintiff used.—*Doherty v. N. Y., N. H. & H. (Mass.)*, 118 N. E., 281. Decided January 4, 1918.

#### "Switching Service" or "Line Haul"

In an action to compel a railroad to accept for services in hauling freight a less sum than its published tariff rate for long distance haul on the theory that the services were switching services, the Iowa Supreme Court holds that services rendered by intersecting railroads in transporting gravel from the plaintiff's gravel pit within a city to a point where the plaintiff was building a bridge within the city were not "switching services," independent of a "line haul," so that one railroad was entitled to the tariff rate fixed for line haul services per car of gravel, and not merely to a switching rate. And the fact, if it were a fact, that the railroad had violated the state statute against unjust discrimination by charging certain other shippers a less rate for line haul services than it demanded of the plaintiff for such services could not justify the court in compelling the railroad, by decree or judgment, to violate, in the plaintiff's case, the statute prohibiting it from charging or receiving more or less than the published tariff rate. *Cummings Sand & Gravel Co. v. Minneapolis & St. L. (Iowa)*, 166 N. W., 354. Decided February 13, 1918.

#### Construction of Tariffs

Tariff Circular 18A of the Interstate Commerce Commission, March 31, 1911, provides that a tariff shall contain an alphabetical index of the points from and to which it applies, and, further, that "this is not to be understood as prohibiting the incorporation in a tariff of a rule for the affirmative and definite application of the rates or fares named in that tariff to or from points not indexed, and which are distinctly intermediate on the same line with points that are indexed." A certain tariff had a clause of this kind, and the Circuit Court of Appeals, Eighth Circuit, holds that this provision must be construed in connection with the circular under which it was issued, and that it had no application to points which were indexed, and to or from which specific rates were named. In such a tariff the word "intermediate" refers to stations between those named.

The company concerned was the C. M. & St. P., and the action against it was for alleged excessive charges. Its tariffs, so far as material, were substantially as follows:

		Rates in cents per 100 pounds	
From—	To—	Flax seed	Wheat, barley and oats
*Cogswell, N. D.	Duluth	14	14
Brampton, N. D.	Duluth	14	14
Newark, S. D.	Duluth	19½	15

\*Cogswell is the station farthest from Duluth.



The question was whether the quoted provision in the tariff is applicable to the rates from Newark to Duluth, and thus whether its rates are fixed the same as from Brampton, notwithstanding the rates specifically fixed from Newark in the table. The court answered the question in the negative and affirmed a judgment for the railroad.—*National Elevator Co. v. C. M. & St. P.*, 246 Fed., 588. Decided October 6, 1917.

### Ejection from Station—What Constitutes a Passenger

In an action for wrongful ejection from a station, it appeared that about 10:30 or 10:45 a. m. on December 24, 1916, the plaintiff was in the defendant's station at Sedalia, Mo., and bought a ticket to Dresden; that the next train to Dresden was to depart at 6 p. m. of that day; that shortly after the purchase of that ticket one of the defendant's employees, with great force and violence, ejected him from the station. The station was crowded at the time. The plaintiff testified that he knew there would not be a train for Dresden until that evening, but he said on account of its being cold outdoors he thought he would buy a ticket so that if the watchman came around and asked him why he was sitting in the waiting room he would have something to show for it. The Kansas City Court of Appeals sustained the railroad's contention that the plaintiff on his own testimony was not a passenger. The court said in part: "In order for the relation of passenger and carrier to exist in cases of this kind it is necessary that the intending passenger come to the station, and within the implied care of the carrier, a reasonable time before the departure of the train by which he is to travel. The right to enter and remain at a railroad station extends only so far as is reasonably necessary to secure to the traveler the full and perfect exercise of his right to be carried upon the cars, and what is a reasonable time will depend upon the circumstances of each particular case; one's right to remain at a railroad station depends on his intent to take a train expected soon to leave. *Kidwell v. Chesapeake & Ohio*, 71 W. Va., 664, 77 S. E., 285, 43 L. R. A. (N. S.), 909. From plaintiff's evidence above it is seen that he intended to use the station for a period of more than seven hours, until his train should arrive, as a convenient and warm place to spend the day. Under these circumstances plaintiff was not a passenger at the time he was ejected from the station." Judgment for \$50 actual and \$50 punitive damages was reversed and the cause remanded.—*Thomas v. Bush* (Mo.), 200 S. W., 501. Decided January 28, 1918.

## United States Supreme Court

### Title to Sections in Spokane Indian Reservation

Suit was brought in ejectment by the Northern Pacific to recover possession of eighty acres of land in the Spokane Indian Reservation, (the title to 64,000 acres depending on the decision). The stipulated facts were substantially as follows: By the act of Congress of July 2, 1864, the railroad was granted, to aid in the construction of its line, 20 alternate sections of land per mile on each side of the line in any territory, and 10 in any state. In October, 1880, the company filed its plat locating its line opposite the land in controversy. Meanwhile, in 1877, a representative of the Commissioner of Indian Affairs had made an agreement with the Spokane Tribe of Indians setting aside certain land in Washington Territory, of which that in question forms part, for the use of the tribe. The report of the representative was sent to the Senate in 1878, but the Executive Order of the President, formally setting aside and reserving the territory described in the agreement, was not signed until January 18, 1881. The Supreme Court of the United States holds that the Secretary of the Interior and the Commissioner of Indian Affairs approved the action of their representative "not later, certainly, than the sending of the secretary's report to the Senate on January 23, 1878, which was almost three years prior to the filing of the railway company's plat, and that the Executive Order of the President on January 18, 1881, simply continued and gave formal sanction to what had been done before." The Spokane Indian Reservation having thus been lawfully created prior to the filing of the plat of the plaintiff's line on October 4, 1880, judgment for the defendant was affirmed.—*Northern Pacific v. Wismer*. Decided, March 4, 1918.

## Equipment and Supplies

Railway supplymen will be particularly interested this week in the editorial on page 691 entitled:

Is the Railway Supply Industry Awake or "Asleep at the Switch?"

and in the article on page 697;

American Railway Supplies in Australia.

### Locomotives

THE PENNSYLVANIA EQUIPMENT COMPANY, 1420 Chestnut street, Philadelphia, is in the market for 3 second-hand standard gage switching locomotives weighing 45 tons or more.

### Freight Cars

THE BIRMINGHAM SOUTHERN is reported as having issued an inquiry for 20 70-ton flat cars.

THE GUANTANAMO & WESTERN has ordered 25 40-ton steel frame box cars from the American Car & Foundry Company.

FELS & Co.—The item in the *Railway Age* of March 8, to the effect that this company was in the market for a number of 8,000 and 10,000 gal. tank cars, has been denied.

### Iron and Steel

THE CHICAGO, BURLINGTON & QUINCY has ordered 4 100 ft. and 1 90 ft. through turntables, totaling 365 tons.

### Signaling

THE ESSEX TERMINAL has ordered from the Union Switch & Signal Company material for mechanical interlocking at Ojibway, Ont.; two machines, Saxby & Farmer, 8 levers each.

THE PENNSYLVANIA LINES WEST OF PITTSBURGH have ordered from the Union Switch & Signal Company materials for an interlocking plant at Boone, Ind.; 35 working levers.

THE CANADIAN PACIFIC has ordered from the Union Switch & Signal Company material for a mechanical interlocking, 18 working levers, at Komoka, Ont., to replace an old machine.

THE JACKSONVILLE TERMINAL COMPANY, Jacksonville, Fla., has ordered from the Union Switch & Signal Company the material for two electro-mechanical interlockings, Towers 1 and 3.

THE PENNSYLVANIA has ordered from the Union Switch & Signal Company material for a mechanical interlocking at Portage, Pa., 24 levers; an electro-pneumatic interlocking, 11 levers, at Paoli, Pa.; two electro-mechanical machines at the same place, and for extensive additions at Metuchen, N. J.; Harrisburg, Pa., and Denholm, Pa.

**FIRE LOSS IN U. S. IN 1917.**—Loss by fire throughout the United States in 1917 amounted to \$230,000,000, making it the worst year for fires in the history of the country with the exception of 1906 when the San Francisco earthquake and subsequent conflagration occurred. Announcement to this effect was made to the New Jersey State Council of Defense in a communication from the Council of National Defense.

**U. S. TRADE WITH CUBA GAINS.**—The volume of trade between the United States and Cuba reached a value of \$445,000,000 last year, according to a compilation maintained by the National City Bank of New York. This figure compares with \$196,000,000 in 1913, the year preceding the war. The more important of the manufactures exported to Cuba in 1917 included approximately \$6,000,000 worth of railway supplies, including rails, cars and locomotives.

## Supply Trade News

The **Gulick-Henderson Company, Inc.**, announces the removal of its New York offices to the Herald Square building, 141-145 West 36th street, in order to provide larger and more suitable quarters.

**J. M. Woodruff**, who has been representing the Warren Brothers Company in the South for the past five years, is now connected with the Standard Asphalt & Refining Company, Chicago.

**Frank J. Hurley**, who for a number of years was a representative connected with the New York office of the Independent Pneumatic Tool Company, died in East Orange, N. J., March 10, at the age of 29 years.

The **Galena Signal Oil Company** is to establish a large manufacturing and distributing plant at Houston, Tex., having bought the refinery and pipe lines of J. S. Cullinan for a consideration said to approximate \$10,000,000.

**E. E. Adams**, consulting engineer, and **F. W. Sercombe**, assistant controller of the Union Pacific System, have been appointed assistants to **R. S. Lovett**, director of the division of capital expenditures of the United States Railroad Administration at Washington.

**W. L. Reid** has been elected vice-president and general manager of Lima Locomotive Works, Inc., with offices at Lima, Ohio. Mr. Reid was born at Paterson, N. J. His entire business life has been connected with locomotive building. He served his apprenticeship in the drawing office and shops of the Rogers Locomotive & Machine Works at Paterson and became successively erecting shop foreman, assistant superintendent and superintendent of the same plant. Leaving the Rogers works he was appointed assistant superintendent of the Brooks Locomotive Works and two years later superintendent of the Brooks works. After serving only 20 days in the latter position he was appointed superintendent of the Schenectady works of the American Locomotive Company. He was later appointed manager of the Schenectady plant and general works manager of the American Locomotive Company. Resigning from the American Locomotive Company he became general manager of the National Brake & Electric Company, Milwaukee, Wis. Six months later he resigned to become general superintendent of the Baldwin Locomotive Works at Eddystone, which position he held up to the time of his recent election.



W. L. Reid

The **Permutit Company**, manufacturers of water softening and water rectification apparatus and for several years past located at 30 East Forty-second street, New York, announces its removal to 440 Fourth avenue, New York, where after March 15 the entire top floor will be occupied by its offices. The entire top floor will be occupied by its offices.

**Tar Carbolineum Wood Preserving Company**, of 34 Greene street, New York, which for over 40 years has sold Avenarius Carbolineum, has changed the name of its product to Protexol and under this trade name will continue to supply a wood preservative identical in every respect with the one sold for so many years under the name Avenarius Carbolineum.

**Ira C. Rogers**, formerly general purchasing agent for the Worthington Steam Pump Company at New York, has recently been appointed general manager of W. R. Keene & Co., also of New York. W. R. Keene & Co., represent the Bay State Tap & Die Company, Alvord Reamer & Tool Company, Sterling Products Company, Keene Twist Drills and Massey Vise Company. Mr. Rogers, before his connection with the Worthington Steam Pump Company, was assistant general purchasing agent of the Pittsburgh & Lake Erie until 1915, at which time he became general purchasing agent of the Worthington Steam Pump Company and resigned February 1, to take the above position with W. R. Keene & Co.

**Karl J. Eklund** has been appointed general manager of Mudge & Co. in charge of the engineering and manufacturing departments, with headquarters at Chicago. Mr. Eklund was born on July 8, 1884, and was educated in the grammar and high schools of Keene, N. H. He started his railroad service as a blacksmith helper in the Boston & Maine shops, and from March, 1903, to April, 1906, served his apprenticeship as machinist on that railroad. During the next two years he was employed on various railroads as journeyman machinist, and in 1908 returned to the Boston & Maine as machinist and foreman in the Keene, N. H., shops. On March 1, 1910, he left the service of this road to accept a position with the Pilliod Company, of New York and Swanton, Ohio, as Baker valve gear inspector, and on February 1, 1915, he was appointed assistant to the president of the Pilliod Company, with headquarters at New York. He occupied this position until April 1, 1917, when he was appointed assistant to the president of Mudge & Co., Chicago, the western representatives for the Pilliod Company, and served in this capacity until his appointment as general manager on March 1, 1918. In this capacity he will continue to direct the service departments of the Pilliod Company and the Chambers Valve Company, both of whom are represented in the west by Mudge & Co. He will also have charge of the service department of Mudge & Co. in addition to the engineering and manufacturing departments.



K. J. Eklund

### Western Electric Company

The Western Electric Company in its fiscal year ended December 31, 1917, did the largest business in its history, the gross sales of \$150,340,359 being 41 per cent greater than in 1916. After the deduction of expenses, taxes, interest and a reserve of \$2,000,000 for contingencies on account of the large merchandise investment and the prevailing high costs, there was a balance available for dividends of \$2,851,716, an increase of \$527,100 over 1916. After allowing for dividends of \$2,550,000 there was left a surplus of \$301,716 or \$7,100 more than in 1916. These dividends compared with \$2,100,000 in 1916 and included the usual 6 per cent dividends on the preferred and \$3 a share on the common.

The company is controlled by the American Telephone & Telegraph Company, and a large part of its output is for the Bell Companies. The balance sheet showed that plant and equipment were increased \$4,200,000 in value during the year and investments were marked up about \$1,000,000. Inventories on December 31 were valued at \$44,415,028, an increase of \$11,414,000 over the same date in 1916.

In his report to the stockholders, H. B. Thayer, president of the company, draws attention to the fact that the business of the company was larger than in any previous year.

"This is true of both the sale of its own manufactures and in



the sale of merchandise not made by it. In our own manufactures the demands from regular customers (the Bell Telephone Companies) were very heavy at the beginning of the year, but as the demands for equipment to meet emergency requirements directly or indirectly caused by the war have increased, the ordinary requirements have decreased so that to a large extent a more expensive and less profitable business kept us busy during the latter part of the year. Therefore, while the profits in this class of business have been larger than in 1916, they have not, as compared with earlier years, been in proportion to the increased investment in the business.

"On sales of merchandise not made by us the profits have been very satisfactory.

"There is no return from foreign investments included in the profits of the Company for 1917. As to some, information is entirely lacking, and as to others, it is incomplete. It is our belief, however, that, as a whole, a conservative valuation of them would require no addition to reserves, the earnings of some of them being apparently sufficient to offset the possible losses of others.

"On the entry of this nation into the war we practically placed our Engineering Department at the service of the nation and believe that it has rendered important service. This has involved large expense and indirect loss through the interruption of our regular engineering program, but because we believed that we were able to render great service, we believed also that the responsibility upon us to render it was great and that our stockholders would approve of our action. On such orders as we undertake for the military departments we have agreed to a basis of cost plus a very moderate profit.

"Our shop force increased during the year from 18,928 to 21,549 employees. The total number of employees at December 31, 1917, was 30,737.

"The sales for 1917 were \$150,340,000. For 1916 they were \$106,987,000, and for 1915 they were \$63,852,000.

"The orders on hand at December 31, 1917, were \$1,950,000 in value less than on December 31, 1916. The average value of an order filled during 1917 was \$107 as compared with \$75 for 1916."

ASSETS		LIABILITIES	
R. Est. and Bldgs. ....	\$12,911,537	Preferred stock, 300,000 shares .....	\$30,000,000
Mach. and equip. ....	12,134,759	Common stock, 150,000 shares no par value..	25,755,364
Merchandise .....	44,415,028	Bonded debt .....	15,000,000
Cash .....	4,257,150	Bills payable .....	10,600,000
Bills rec. ....	1,177,166	Accts. payable .....	9,194,558
Acc. rec. ....	24,678,194	Reserve for Dep. ....	16,285,136
Sundry investments....	13,094,686	Reserve for Emp. Ben.	
Grand Total.....	\$112,668,520	Fund .....	1,500,000
		Res. for con.....	4,333,462
		Grand total .....	\$112,668,520

## United States Rubber Company Buys

### American Locomotive Plant

The United States Rubber Company announced last Friday the purchase of the plant of the American Locomotive Company at Providence, R. I. It is understood that the price paid for the property was around \$500,000. The property consists of about ten acres of land with extensive buildings, centrally located in the city of Providence, and adjoins the Revere tire plant of the rubber company. The plant was used for many years by the American Locomotive Company when it was engaged in the automobile manufacturing business.

President Colt of the rubber company said that the plant will be used in the extension of the manufacture of truck tires. One of the buildings will probably be used for the manufacture of balloons for the United States government.

A LUMBER PRODUCTION IN THE UNITED STATES OF 39,200,000,000 feet in 1917, or a decrease of 2 per cent as compared with the cut of 1916, is the estimate made by the Forest Service based on incomplete reports received up to February 26.

U. S. AVIATORS MAKE FAST FLIGHT IN ITALY.—Two American aviators on March 15 accomplished a fast flight from Foggia to Rome, flying the 212 miles in 158 minutes. The aviators were Major Ryan, commander of the American Flying Corps at Foggia, who acted as pilot, and Captain Frost, who made the trip as observer.

## Railway Financial News

CANADIAN PACIFIC.—The Canadian Government has passed an order in council providing for special taxation of the Canadian Pacific Railway. The Wall Street Journal says the order provides that the company shall pay:

1st—Half its net earnings from railway operations in excess of 7 per cent on its common stock (after paying fixed charges, appropriation for pension fund and dividends on the preferred stock).

2nd—Income tax on the company's special income (inclusive of all the company's income except earnings from railway operations) under provisions of the income war tax act of 1917, or any amendment thereof hereafter enacted.

The order in council provides that the total amount to be paid in taxes each year by the company shall not be less than:

1st—The company's net earnings in such year from railway operations and from special income as defined above in excess of 10 per cent on its common stock, after paying fixed charges, appropriation for pension fund and dividends on the preferred stock, up to \$7,000,000, or

2nd—The amount by which its net earnings from railway operations exceed net earnings from railway operations for the fiscal year ended December 31, 1917, due to increase in freight and passenger rates granted by order of the Board of Railway Commissioners dated December 26, 1917.

This order shall be deemed to have come into force and effect on the first day of January, 1918, and to continue in force and effect during the present war and until further orders.

DENVER & RIO GRANDE.—A judgment for \$36,908,529 was entered in the Supreme Court at New York on March 13 against the Denver & Rio Grande in favor of the Equitable Trust Company as the balance due with interest on a judgment for \$38,270,343, recovered in the United States District Court at New York on May 18, 1917, in favor of the trust company which sued for the payment of interest on a \$50,000,000 bond issue guaranteed by the Rio Grande for the Western Pacific Railway.

Ernest Howard of New York has issued a protest against the decision which adjudged to the Western Pacific damages of approximately \$38,000,000 against the Denver & Rio Grande. Mr. Howard claims that the Western Pacific property was worth from \$40,000,000 to \$60,000,000 when the court sold it for the absurd price of \$18,000,000.

GRAND TRUNK.—This company has issued a statement regretting its inability to pay dividends on its guaranteed or preferred stocks, owing to the enormous increase in operating expenses, notwithstanding the fact that during the past year the company carried the largest traffic in its history. The hope is expressed that the Canadian Government will, in the near future, take such action as will enable the company to meet present unparalleled war conditions.

NEW YORK, NEW HAVEN & HARTFORD.—The directors have sent a circular to the stockholders outlining the terms of a new issue of preferred stock, which, if subscribed for in full will raise \$43,588,300, sufficient to pay off the \$43,000,000 of the company's 5 per cent notes falling due on May 1, next. The circular states that stockholders of record at the close of business on March 20, will be offered one share of the new preferred stock for each four and one-half shares now held, and that holders of the company's 6 per cent convertible bonds will get one share of the new preferred for every \$450 unit of the bonds in their possession. The total amount of stock now outstanding is \$157,117,900, all of one class, while \$39,029,000 of the bonds are in the hands of the public. It is stipulated that the new stock shall be paid for in full on or before April 5, or in four quarterly instalments, the first on that date, and those made later on July 1, October 1 and January 2, 1919, respectively. The stock is to be a 7 per cent cumulative issue, the dividends to be paid semi-annually. Howard Elliott, representing the New Haven, is conferring with John Skelton Williams, director of the finance section of the railroad administration on the proposed offering, but a final decision has not been reached.

## Railway Officers

### Executive, Financial, Legal and Accounting

**H. A. Taylor**, general attorney of the Erie, has been appointed assistant to **Walker D. Hines**, assistant to Director General McAdoo.

**William J. Moule**, auditor of disbursements, of the Canadian Pacific with office at Montreal, Que., has been appointed assistant controller.

The election of **C. B. Seger** as acting chairman of the executive committee of the Union Pacific, to succeed **R. S. Lovett**, is commented on elsewhere in this issue.

**Walter J. Stevenson** was appointed auditor of commissary accounts of the Northern Pacific, with office at St. Paul, Minn., succeeding **J. A. Swanson**, resigned, effective March 16.

**C. C. Higgins**, consulting engineer, with **J. W. Kendrick** has been appointed assistant to vice-president, of the St. Louis-San Francisco, with office at St. Louis, Mo., effective March 15.

**William Ellis**, formerly commerce counsel of the Chicago, Milwaukee & St. Paul, and **Nathan Matthews**, of Boston, Mass., have been appointed assistants to **John Barton Payne**, general counsel of the United States Railroad Administration at Washington.

**E. E. Adams**, consulting engineer, and **F. W. Sercombe**, assistant controller of the Union Pacific System, have been appointed assistants to **R. S. Lovett**, director of the division of capital expenditures of the United States Railroad Administration at Washington.

**C. C. Barry**, auditor of the Los Angeles & Salt Lake, with office at Los Angeles, Cal., has been elected secretary, with headquarters at Los Angeles, vice **W. H. Comstock**, assigned to other duties, and **P. J. Hunt** has been appointed acting freight claim agent, with office at Los Angeles, vice **J. R. Bordeaux**, resigned.

### Operating

**George Masten** has been appointed superintendent of the Tennessee Central, with office at Nashville, Tenn.

**A. J. Hasenbalg**, trainmaster of the Chicago, Milwaukee & St. Paul, with office at Chicago, has been appointed assistant superintendent of the Chicago Terminal succeeding **W. C. Bush**, transferred.

**J. C. Stamm**, trainmaster of the Alabama & Vicksburg, with office at Vicksburg, Miss., has been appointed superintendent of the Vicksburg, Shreveport & Pacific, vice **H. B. Hearn**, resigned to engage in other service, and **L. B. Harris** has been appointed trainmaster of the Alabama & Vicksburg, vice Mr. Stamm.

**H. C. Nutt**, general manager of the Los Angeles & Salt Lake with headquarters at Los Angeles, Cal., having accepted a commission as deputy director general of American railroads for service in France, **W. H. Comstock**, secretary, with office at Los Angeles, has been appointed acting general manager during Mr. Nutt's absence.

**S. L. Racey**, superintendent of the Third division on the Colorado lines of the Denver & Rio Grande, with headquarters at Gunnison, Col., was transferred to the Green River division, with headquarters at Helper, Utah, succeeding **J. A. Shepherd**, transferred. **C. E. Leverich**, chief dispatcher on the Utah line, with headquarters at Salt Lake City, Utah, has been appointed trainmaster of the Salt Lake division, with the same headquarters, succeeding **W. R. McPherson**, who was appointed assistant superintendent of the Green River division, with headquarters at Green River, Utah, succeeding **G. E. Wilcox**, promoted, effective March 14.

**E. L. Desjardines**, who has been appointed superintendent of the Canadian Government Railways, Transcontinental

division, with headquarters at Edmundston, N. B., as has already been announced in these columns was born on August 17, 1859 at St. Jean Port Joli, Que., and was educated at the St. Anne College. He began railway work in August, 1876, as a telegraph operator on the Intercolonial Railway and subsequently served as train baggage master. From 1880 to 1898 he was train despatcher at Riviere du Loup, and then became chief despatcher at Levis. In 1912 he was appointed assistant superintendent, which position he held at the time of his recent appointment as superintendent as above noted.

**W. F. Kirk** who has been appointed superintendent of the Central Division of the Missouri Pacific, with headquarters at Van Buren, Ark., as announced in these columns March 1, was born at Osage City, Kan., on August 19, 1881. He was first employed as a messenger on the Atchison, Topeka & Santa Fe in November, 1897. In April of the following year he was transferred to the maintenance of way department as a section laborer. In November, 1899, he entered the service of the Wells-Fargo Express Co. as a messenger. In February, 1900, he was employed by the Pecos Valley as a telegrapher, being promoted to despatcher in June, 1900. From December, 1900, to March, 1901, he was a despatcher on the Michigan Central, and from April, 1901, to January, 1902, he was a telegrapher with the Missouri Pacific, since which time he has served consecutively to date as despatcher, chief despatcher, trainmaster, assistant superintendent and assistant to the general superintendent of transportation. In December, 1917, he became acting superintendent of the Wichita division and served in that capacity until his appointment as noted above.

### Traffic

**H. L. Hammill**, traveling agent of the Chicago & North Western with office at St. Louis, Mo., is to assume the duties of **G. F. Brigham**, general agent, resigned, effective April 1.

**H. J. Titus**, superintendent of the dining car service of the Northern Pacific, with headquarters at St. Paul, Minn., has resigned to become associated with the Chauncey Wright Restaurant Company of Seattle, Wash.

### Engineering and Rolling Stock

**Arthur Crohn** has been appointed general master mechanic of the Missouri, Kansas & Texas, with headquarters at Denison, Tex.

**H. R. Manby**, superintendent and engineer maintenance of way of the Tennessee Central with office at Nashville, Tenn., has been appointed chief engineer and the position of engineer maintenance of way has been abolished.

**G. B. Herington** has been assigned as supervising engineer of the Tucson division of the Southern Pacific, with headquarters at Tucson, Ariz., and during such assignment will have general charge of all matters pertaining to maintenance of way and structures.

### Purchasing

**A. H. Young**, tie and timber agent of the Seaboard Air Line, with office at Hamlet, N. C., has been appointed general storekeeper, with office at Portsmouth, Va., vice **D. D. Cain**, resigned to accept services with another company, and **J. G. Calori** has been appointed tie and timber agent, vice Mr. Young.

### Obituary

**Richard H. L'Hommedieu**, formerly assistant to the vice-president of operation of the Michigan Central, died in Detroit, Mich., March 18, age 68 years.

**WOOD AS FUEL** is proving quite popular at Brantford, Canada. The West Brantford municipal yards are being turned into a wood depot for next winter, the city authorities being determined that this city shall not be caught by a fuel famine as was the case during the past winter. Orders will be placed for 5,000 cords of wood, and to facilitate handling, a railway siding will be laid into the yard, the rails being available from the street railway there.